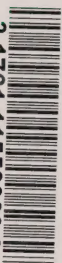


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CANADA'S GREEN PLAN

THE SECOND YEAR



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CANADA'S GREEN PLAN WORKING TOGETHER FOR A SUSTAINABLE FUTURE

Canada's Green Plan, our internationally acclaimed national strategy and action plan for sustainable development, is now entering its third year.

As this report shows, the Green Plan has accomplished much in cleaning up our environment and in making sustainable development a guiding principle linking economic development and environmental protection both at home and abroad. Clearly, much remains to be done and we all — government, industry, environmental groups and individuals — have a role to play.

Looking Back ...

From the Atlantic coast to the Fraser River Valley to the Arctic shores, Canadians are working together to meet the Green Plan's goals of a cleaner, safer and healthier environment.

As Canadians, we should all take pride in our efforts and applaud our accomplishments — they are tangible examples of the motto: Think Globally, Act Locally.

The Earth Summit was the key event on the 1992 sustainable development agenda. Because of the Green Plan, Canada went to the Earth Summit well prepared to contribute to global progress. At the same time, we went to Rio de Janeiro eager to learn.

The Rio gathering of world leaders reinforced the fact that environmental decision-making is changing. The key lesson from Rio is that we need to continue to improve the way we make decisions about the environment. They must be based on openness, accountability and inclusion.

We will only make progress if all sectors cooperate and all partners respect each other's interests. That is how the Green Plan was born; that is how we approached the Earth Summit.

... And Looking Ahead

The past two years have confirmed that the fundamentals of the Green Plan are as valid today as they were in 1990. The Green Plan, however, was conceived as a living plan. We need to ensure that it continues to respond to newly emerging needs, and that we profit from experience.

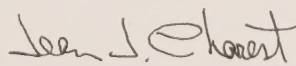
Our first priority should be better use of the full range of tools available for protecting the environment — through promoting voluntary compliance as the strategy of first resort; through harnessing market forces to influence the millions of collective and individual decisions; and through streamlining the activities of the different levels of government in Canada.

Our second priority relates to the economic side of the sustainable development equation. The business community is a key partner in the development of a new relationship between the environment and the economy in Canada. The Green Plan should support the development of an environmentally competitive private sector.

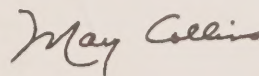
Our third priority involves broadening the focus of the Green Plan to address more fully the global aspects of sustainable development — building the environment into the multilateral trade equation, and assisting developing countries to make the transition to sustainable development.

The government firmly believes that the "Rio way" of openness, accountability and inclusion was the right way to participate in the Earth Summit. It will be an important element in the future development and implementation of sustainable development in Canada, and will be a hallmark of the evolution of the Green Plan.

Regular reporting on progress in meeting our Green Plan targets and schedules is a key element of this process. Canadians must be informed to be effective partners in its implementation and evolution. After all, the Green Plan belongs to the Canadian people. To ensure their lasting commitment to the vision and values of the Green Plan, Canadians must be involved in achieving its goals.



Jean Charest
Minister of the Environment



Mary Collins
Minister of State Environment



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INTRODUCTION

Canada's Green Plan

Canada's Green Plan is the national strategy and action plan for sustainable development launched by the federal government on December 11, 1990. The Green Plan was developed through extensive consultations with Canadians from all sectors – government, business, interest groups and the public.

The Green Plan's goal is "to secure for current and future generations a safe and healthy environment, and a sound and prosperous economy." It represents a fundamental shift in the way the federal government views economic development and environmental protection: they are inextricably linked; both are critical to the health and well-being of Canadians.

Thus, while continuing action on a wide range of specific issues from depletion of the ozone layer to protected spaces, the Green Plan also addresses the fundamentals of sustainable development – the need to incorporate sustainability into all aspects of decision-making at all levels of society.

The Green Plan also establishes the basis for new and stronger partnerships for sustainable development. We all have a role to play in meeting our environmental challenges; we all have to work together to make sustainable development a reality.

Year Two in Perspective

Before the Green Plan, the environmental agenda was evolving so rapidly that the public policy challenge was one of simply trying to keep pace and to catch up:

- With a prolonged period of steady increase in the importance attached to environmental issues by Canadians and their expectations of government.
- With the stresses on the environment being more and more apparent.
- With an international agenda that was gathering tremendous momentum and accelerating.
- With a fiscal situation that limited room for manoeuvring by all governments and across all policy areas.
- With responsibility for environmental management shared broadly within and between governments, and across society as a whole.

Canada's Green Plan represents the federal government's response to that challenge. It has the following main features:

- The Green Plan is based on the concept of sustainable development, which means reconciling our demands on the economy with the ability of the environment to sustain us and future generations.

- It is a comprehensive plan – a coordinated package of actions across a broad range of environmental issues from climate change to parks and wildlife.
- It is a government-wide commitment. It recognizes that environmental issues transcend traditional ministerial boundaries, and that a concerted effort across government departments is essential if we are to meet our environmental challenges effectively.
- It contains a substantial commitment of new resources for the environment.
- It contains a wide range of specific targets and schedules. They are a key element of accountability.
- The Green Plan, in both approach and substance, reflected the input received from the consultations that were part of its development.

Launching a major new public policy initiative involves a series of challenges. The Green Plan is an umbrella document that deliberately left much of the detail to the implementation phase. When it was launched, the government indicated that it would undertake a final review of each program before the details and funding levels were completed.

That review is a necessary part of the public policy process. Its purpose is to ensure that programs are effective – that they will achieve

the objectives set out in the Green Plan – and that they are efficient, that is, objectives will be met at least cost to Canadians. A key result from the first year was that virtually all Green Plan programs went through that process, were approved, funded, announced, and began to be implemented. The focus was on laying the foundation for the delivery of more tangible and concrete results.

The fiscal situation has also influenced Green Plan program delivery. Like all other areas of expenditure, the Green Plan has been part of the government's overall fiscal restraint program. Restraint has reinforced efforts to make programs efficient, develop innovative delivery mechanisms, and reorient other activities to meet key Green Plan objectives.

Second Year Achievements

Despite these challenges, real progress has been made on implementing sustainable development in Canada. Substantial advances have been made on the Green Plan's short-term objectives, and on our longer term priorities.

There are a number of indicators that the Green Plan is making headway.

First, some 80 initiatives and programs are now under way that touch many aspects of the lives of nearly all Canadians, from the air we breathe, to the water we drink, to the food we eat. For example:

- To protect human health and the environment, 20 of 44 full assessments of priority toxic substances have been completed, including six that have been released.
- To reduce waste generation, voluntary action succeeded in contributing towards the 20% reduction in packaging waste tar-

get established under the National Packaging Protocol.

- To promote sustainable agriculture, federal-provincial agreements have been signed with Nova Scotia, PEI, Ontario, Alberta and Quebec, and are in advanced stages of development with other provinces and territories.
- To complete the national parks system, land has been set aside for a new national park on Baffin Island, an agreement signed to establish Aulavik National Park on Banks Island, and feasibility studies are under way for the Manitoba Lowland, northern Labrador, and Bluenose Lake and Wager Bay in the Northwest Territories.
- To preserve endangered species, the *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* – to reduce poaching and smuggling – has been passed, and recovery plans for seven migratory birds were completed.
- To develop and commercialize new technologies for energy efficiency, the *Energy Efficiency Act* has been passed, R-2000 licensing expanded, and 10 model houses are being constructed.
- To lessen stress on the ozone layer, CFC consumption in Canada has declined by 58% since 1986, and new phase-out timetables were established domestically and internationally.
- To expand and better equip the next generation of environmental scientists, the first slate of 31 doctoral fellowships was awarded.
- To enhance enforcement of environmental regulations, the number of Environment Canada's full-time inspectors and investigators has increased from 49 to 70.

- To prevent marine spills, inspection of foreign vessels entering Canada's waters has increased from 8% in 1990 to 16% in 1991 to 38% in 1992. The internationally agreed minimum standard is 25%.

Second, people from across Canada have been working together to make the Green Plan a success. For example:

- In Atlantic Canada, 13 communities are developing "blueprints" for managing their coastal resources – each project is organized and run at the local level.
- In Quebec, the Centre inter-universitaire de recherche en toxicologie of the Université de Montréal and Université du Québec à Montréal is part of a national network examining the effects of toxic chemicals on living organisms.
- In Ontario, the automotive industry has agreed to establish a comprehensive pollution prevention project aimed at voluntary reduction in toxic substance use, generation and release.
- In the three Prairie provinces, working models of sustainable forestry are being developed in each province, involving partnerships between governments, industry, aboriginal groups, academia and others. Part of a national network, each site will create a new relationship between forestry and the environment.
- In British Columbia, a wide range of partners are working on the Fraser River Sustainable Development Plan to clean contaminated sites, prevent further pollution, restore wildlife habitat and salmon populations, and enhance water quality.

- In the North, a 50 year legacy of hazardous and unsightly waste on the shores and islands of Great Slave Lake was cleaned up by a team of 50 students in a project launched by the NWT Métis Nation.

Third, the Green Plan provided the framework for Canada's participation in the Earth Summit, overall and on specific issues like climate change, biodiversity, fisheries and forestry. And through implementation of the Green Plan, Canada is providing a model for other countries to develop their own strategies and action plans to harmonize environmental protection and economic growth. On December 4, 1992, Canada ratified both the Climate Change and Biological Diversity conventions.

And fourth, advances are being made in improving decision-making, which goes to the heart of sustainable development. For example:

- The *Environmental Assessment Act* has received Royal Assent. This is a key element of the government's overall strategy to put the federal house in order.
- The government committed itself to, and has released, an environmental assessment of the North American Free Trade Agreement. NAFTA represents the first time that envi-

ronmental considerations have been integrated into the development of a trade agreement.

- Pulp and paper regulations are now in force. They took years to develop and negotiate, and are based on sound science.
- A discussion paper on economic instruments was released. It is the first step towards harnessing market forces for environmental protection.
- The second national State of the Environment Report was issued, and 8,000 copies were sold in the first six months of publication. It provides accurate, timely and accessible information to help Canadians make informed decisions.
- And a Code of Environmental Stewardship for federal government operations has been adopted.

Government alone cannot solve all environmental problems. It is a shared responsibility. The continuing success of the Green Plan depends on cooperation and partnership, because ultimately, it is individual Canadians who will deliver on the Green Plan's potential.

How to Read the Report

The remainder of the report is in three parts:

- Part One reviews performance relative to the goals of the Green Plan, and illustrates the linkages between program components.
- Part Two summarizes actions taken in year two of the Green Plan that support program targets. Each program target is restated with a cross-reference to the page in the Green Plan document. A preview of plans for year three is also presented.
- Part Three summarizes financial requirements for year three of the Green Plan, as well as for previous years.

MAKING PROGRESS ON OUR GOALS

The Green Plan established a series of national sustainable development goals for Canadians. These goals, listed below with highlights of progress to date, serve as benchmarks for measuring progress and to mobilize our collective efforts.

An encouraging feature of the progress we are making on our goals is the extent to which partnerships – with Canadian governments, industry, environmental groups and the international community – are playing a key role. Federal leadership is a critical catalyst in the successful implementation of the Green Plan.

While this section illustrates our collective progress on the Green Plan's goals, the next section presents a more detailed, program-by-program summary of second-year progress on the full range of Green Plan initiatives, along with plans for year three.

As our environmental indicators and monitoring improve, future Green Plan reports will review progress on a more complete collection of targets. Other important information on the environment is available separately through State of the Environment reporting, the Environmental Citizenship Initiative's Learning Program and individual program reports.

Goal 1: Clean Air, Water and Land

Assurance that citizens today and tomorrow have the clean air, water and land essential to sustaining human and environmental health.

One of the most urgent environmental problems for aboriginal communities is the lack of safe water and sewage systems. It is a particularly pressing issue for many remote reserves. Many illnesses caused by poor health and living conditions can be prevented by providing adequate drinking water and sewage services.

One of the ways that Indian and Northern Affairs Canada meets the need for better health and safety is through its capital program to establish and improve water and sewer services on reserves. The Green Plan's Indian Health and Water Initiative, announced in March, 1991, is accelerating this work and expediting the program to meet the health and safety requirements needed to reduce the incidence of communicable diseases and infections.

The goal of the Indian Health and Water Initiative is to provide aboriginal communities with water and sewage services comparable to other communities in their area. Indian bands identify water and sewage needs and manage the planning, design and construction of projects.

By the end of 1992, through the Green Plan's acceleration of on-going water and sewage work, over 91% of existing homes on reserves had adequate potable water and 80% had proper sewage systems.

In addition to the capital work, the Assembly of First Nations and Health and Welfare Canada are working together to improve monitoring of contaminants in drinking water on reserves, and to develop a water treatment operators training program.

Canada-wide reduction of the concentration of ground-level ozone (smog) to below the threshold of health effects in the most susceptible segments of the population.

Ground-level ozone, a major component of smog, is a concern across Canada but particularly so during the summer for people living in British Columbia's Lower Fraser Valley, in the Windsor-Québec corridor, and in southern New Brunswick and Nova Scotia. In those areas, Canadians are sometimes exposed to ozone levels exceeding the acceptable level of 82 parts per billion which can harm human health, and significantly damage agricultural crops and other forms of vegetation.

Federal and provincial governments have recognized the problem, and are now undertaking initiatives, often in cooperation with industry, to reduce the causes of smog. The Green Plan provides the framework for federal efforts.

In 1992, Canada's auto makers recognized the contribution they could make to reduce smog by signing an agreement with the Minister of Transport to establish new, more stringent passenger car exhaust emission controls. Under the agreement, the auto industry will be phasing

in these emission controls for the 1994 and 1995 model years, achieving full compliance in the 1996 model year.

In British Columbia's lower mainland, the Green Plan contribution to the province's extensive smog reduction program is being conducted on several fronts. One program will study the extent to which emissions from the 3,000 deep sea marine vessels using the port of Vancouver each year contribute to the smog problem. Environment Canada also spearheaded the voluntary implementation of gasoline vapour recovery in the Lower Fraser Valley. In the past year, retail outlets completed the installation of vapour recovery piping at some 600 sites to complement the retro-fitting of tanker trucks and the installation of vapour recovery units at the refineries and bulk terminals.

A 50% reduction in Canada's generation of waste by the year 2000.

In April 1989, the Canadian Council of Ministers of the Environment (CCME) established the target of a 50% reduction in the generation of waste by the year 2000. Packaging – everything from cereal boxes to glass containers – was also targeted for waste reduction: 20% by the end of 1992, 35% by the end of 1996, and 50% less packaging waste by the year 2000.

Preliminary data suggest that the Protocol's voluntary approach is proceeding successfully. The 1990 results indicate a 14% decline in packaging waste disposal between 1988 and 1990. Results from the 1992 Packaging Survey will be available for analysis during the summer of 1993. The results will be used to determine whether the Protocol's interim target of 20% has been achieved, and will form the basis for recommendations to CCME concerning the need and timing of regulatory and other control mechanisms.

In November and December 1992, volunteers from provincial Ministries of the Environment, environmental groups and Environment Canada set up kiosks at shopping malls in 13 cities across Canada. Shoppers were able to obtain information about the problems of packaging waste, and were given tips on how they could change their practices and reduce packaging. Innovative alternative Christmas wrapping suggestions were also on display.

Many shoppers were pleased to fill out survey cards on product packaging. Every person who participated in the campaign received a reusable cloth shopping bag. More than 20,000 cloth bags were handed out, and nearly 8,000 survey cards were completed and forwarded to manufacturers after the relevant data was recorded by Environment Canada.

Goal 2: Sustainable Use of Renewable Resources

The shifting of forest management from sustained yield to sustainable development.

The federal government cannot act alone in making the transition from sustained yield to sustainable development. Eighty percent of forest land in Canada is under provincial jurisdiction, 11% under federal jurisdiction and 9% privately owned.

The *Department of Forestry Act* explicitly requires the Minister to promote sustainable development of Canadian forests. This act is the first piece of federal legislation that specifically refers to sustainable development.

The Canadian Council of Forest Ministers (CCFM) has agreed on the need for environmentally sound forest management to enhance Canada's competitiveness in the world market. In 1992, the CCFM developed the National Forest Strategy, which supports sustainable forest management and endorses Canada's Forest Accord. The Council, together with federal and provincial Environment, Parks and Wildlife ministers also endorsed the 12% protected space objective.

Some of the key challenges in making the transition from sustained yield to sustainable development are:

- **Old-Growth Forests:** The debate is primarily over what portion of forests should be left untouched and what portion should be available for other uses, including commercial harvesting. Sustainable development means striking a balance between ecological and commercial interests through sound ecosystem management.

Canada will promote the conservation of representative and unique ecosystems, including old-growth forests, as part of its strategy for setting aside 12% of our territory as protected space.

- **Harvesting Practices:** As part of the National Forest Strategy, Canada is committed by 1995 to review and refine its harvesting practices guided by the principles of sustainable development and landscape conservation.
- **Reforestation:** Canada relies on natural regeneration in the renewal of more than half of its harvested land, which ensures a natural species succession. On the remainder, seeds and seedlings are planted from a wide variety of growing stock. In 1990, one billion trees were planted.

The underlying principle of Canada's reforestation methods is to return to the forest as much or more than was taken out. Over the past 15 years, Canada has doubled its reforestation efforts and now plants nearly two trees for every one it cuts.

- **Forest Pesticides:** Every year, losses due to insects and diseases amount to nearly 55% of Canada's annual harvest. Consistent with environmentally sensitive pest management practices, the forest sector has significantly increased the use of biological rather than chemical agents.

The Green Plan provides two programs that are putting the principles of sustainable development into practice: The Partners in Sustainable Development of Forests Initiative and the creation of Tree Plan Canada.

The creation of a network of Model Forests is the central element of the Partners in Sustainable Development of Forests initiative. Its aim is to develop more effective decision-making in forest management. The 10 Model Forest sites across Canada, that will be working models of sustainable development, are practical examples of this goal. (See Sustaining Our Renewable Resources for the listing of Model Forest sites). These sites will be managed and funded through a partnership agreement between Forestry Canada and each Model Forest partnership group.

Another program is Tree Plan Canada, the community-industry-government partnership to plant 325 million trees in rural areas as well as in and around 6,000 cities, towns and communities across Canada. In the six months following its launch, five million trees were planted across Canada. Through the work of the National Community Tree Foundation (1-800-563-0202), a non-government organization, some 230 partners ranging from municipalities to community groups and volunteers, have developed tree planting and education projects. By the summer of 1993, approximately 11 million trees will have been planted nationwide. Thirteen corporate sponsors have been enlisted and more are expected.

Goal 3: Protection of Our Special Spaces and Species

The setting aside of 12% of the country as protected space.

During the century following the creation of Banff National Park, less than 5% of Canada's 10 million square kilometre area had been preserved as protected space. But over the last year, an additional 100,000 square kilometres were added in 47 new parks, wildlife areas and ecological reserves. Highlights include:

- an agreement for the establishment of Aulavik National Park on Banks Island – the first national park established since 1988 – and setting aside of lands for a national park on northern Baffin Island;
- creation of three migratory bird sanctuaries, and agreement to establish the Canadian Forces Base Suffield National Wildlife Area in Alberta;
- three new provincial parks, a joint aboriginal-provincial park and withdrawal of land in the Khutzeymateen Valley in British Columbia; and
- designation of 16 new protected sites in Prince Edward Island.

In addition, a number of provinces announced plans to significantly expand their protected areas network. For example, Quebec lifted its moratorium on the creation of provincial parks and identified 18 sites totalling 57,000 square kilometres, Ontario announced plans to represent five natural areas, and British Columbia plans to establish 23 new provincial parks, recreation areas and wilderness areas.

The first ever joint meeting of Canada's Parks, Wildlife and Environment Ministers was held in November 1992. During the meeting, discussions with representatives of Canada's national aboriginal organizations also took place. Ministers made a formal commitment to complete the country's networks of Protected Natural Areas, and launched Canada's follow-up action on the global Convention on Biological Diversity ratified by Canada on December 4, 1992.

Ministers endorsed a Statement of Commitment, which calls on provinces, territories and the federal government to make every effort to:

- work towards completion of networks of protected areas representative of Canada's land-based natural regions by the year 2000, and accelerate the protection of areas representing Canada's marine natural regions;
- accelerate the identification and protection of critical wildlife habitat;
- adopt strategies and timetables for the completion of the protected areas network;
- continue to cooperate in protecting ecosystems, landscapes, and wildlife habitat; and
- ensure that protected areas are integral components of all sustainable development strategies.

Goal 4: Preserving the Integrity of Our North

Preservation and enhancement of the integrity, health, biodiversity and productivity of Canada's Arctic ecosystems.

A key component of meeting the health, biodiversity and protection needs of northern Canadians is the Arctic Environmental Strategy that began in 1991 and builds on the ongoing work of governments, communities and individuals. Its four main components – waste clean-up, water quality, studies of contaminants, and integration of environmental and economic priorities throughout the Yukon and Northwest Territories – are producing results that benefit the North and all Canadians.

Since the Strategy was introduced, waste clean-up and assessment has been carried out in both territories at over 100 sites that are hazardous or unsightly. In the Yukon, clean-ups have taken place in Watson Lake, Teslin, Mayo, Whitehorse and Dawson. In the Northwest Territories, projects were undertaken in almost all communities, including Resolute, Ferguson River, Arctic Red River, Rankin Inlet, Clyde River, Baker Lake and Iqaluit.

Forty-five water quality stations have been activated across the North, 25 in the Yukon and 20 in the Northwest Territories. Nineteen water quantity stations were also established. Water is the North's most valuable renewable resource for food, transportation, sustainable economic development and cultural and spiritual well-being. Threats to water quality come from local

sources and from industrial and agricultural sources outside the Arctic.

Over 50 research projects on contaminants in the Arctic environment have begun involving universities, government departments and aboriginal organizations. These scientific studies and related activities are determining where contaminants come from, how they affect the environment, wildlife and people of the North, and how to reduce or eliminate them. One project involves a comprehensive snow monitoring network of 10 new snow sampling stations in the Yukon. Because pollution knows no boundaries, much of this research work is being carried out in cooperation with Norway, Russia, the United States and other circumpolar countries. Two air monitoring stations have been established; one in the Yukon and one in the Northwest Territories.

To enhance integration of the environment and economy, over 50 environmental action projects and resource management plans were started in 1992. The action projects include recycling of paper, plastic and metals, the development of community nature trails, composting, and community clean-up. Community Resource Management Plans enable participating communities to protect their environments while developing their economies around local renewable resources. Examples include the Hook Lake Wood Bison Management Plan; the Fort Liard-Nahanni Butte Forest Resource Management Plan; the Isabella Bay Bowhead Whale Sanctuary; the Baffin Fisheries Workshop; and the Lancaster Sound Polar Bear Project.



Goal 5: Global Environmental Security

Phasing-out CFCs by 1997, and methyl chloroform and other major ozone-depleting substances by the year 2000.

The ozone layer, a thin gas covering, is located between 15 and 40 kilometres above the Earth in the stratosphere. This naturally produced chemical layer acts as a protective shield against the sun's ultraviolet radiation, which, in excess amounts, is harmful to the natural environment and to human health.

Emissions of human-made chlorofluorocarbons (CFCs) and other chemicals are depleting the ozone layer. Ozone loss of more than 50% has been observed over the Antarctic during the spring. The Arctic is now becoming the focus of increased attention. For example in 1992, at Resolute in the Canadian high Arctic, ozone values for the entire year were 6% below normal, with a measured peak reduction of 9.6% in the springtime.

The Montreal Protocol of 1987 and subsequent amendments have set timetables for phasing out the production of the major ozone-depleting substances. Eighty-six countries, including Canada and all major producers of those substances, had ratified the Montreal Protocol as of September 1992. At the end of 1990, countries that had ratified the Protocol accounted for about 93% of the world supply of CFCs and halons. Other countries, including China and India, have since ratified the Protocol.

Through the Green Plan and in cooperation with the provinces, the Canadian control program has been accelerated, and scientific programs that monitor the state of the ozone layer have been expanded.

The Canadian Council of Ministers of the Environment (CCME) agreed in March 1992 to new timetables for the elimination of ozone-depleting substances, including the phase-out of the production and import of CFCs no later than December 31, 1995. They also announced that all jurisdictions would begin implementing CFC recovery and recycling programs. Canada's phase-out strategy is working. According to a 1992 report, CFC consumption in Canada decreased by 58%, as of June 1992, from 1986 levels.

In November 1992, Canada and signatory countries to the Montreal Protocol met in Copenhagen and agreed to a new timetable and control measures for ozone-depleting substances consistent with Canada's national action plan. Those include accelerated phase-out dates for CFCs, carbon tetrachloride, methylchloroform (January 1, 1996) and halons (January 1, 1994); phase-out of HCFCs (99.5% reduction by 2020); the addition of methyl bromide as a controlled substance; and a commitment to recovery and recycling programs by the parties.

On the scientific front, Canada initiated The "Ozone Watch" and the UV (Ultra Violet) Advisory Programs – the first two continuous programs of this kind in the world. They were introduced to inform and warn the Canadian public about the state of the ozone layer over Canada, and the implications for the sun's radiation at ground level. For public safety reasons, these services were introduced a full year ahead of schedule in response to concerns and predictions that depletion over the Arctic would be severe during the spring of 1992.

A High Arctic Ozone Observatory, constructed at Eureka in the Northwest Territories, is hosting

teams of Canadian and international scientists conducting studies and measurements of the ozone layer phenomenon. Canada has also expanded its network to 12 sites to monitor the state of the ozone layer. The stations use a Canadian-made, state-of-the-art technological device, the Brewer spectrophotometer, made in Saskatoon. This instrument is becoming an international standard. Nearly 100 models have been exported and are in operation in 25 countries around the world.

Canada is also participating in many international scientific efforts ranging from joint studies, to measurements from space shuttle flights to operating the World Ozone Data Centre for the World Meteorological Organization, a United Nations Agency.

As a cornerstone of Canada's foreign policy, acceleration of global cooperation, understanding and progress on environmental issues.

In June 1992, one of the largest international conferences ever held took place in Rio de Janeiro, Brazil. Attended by the heads of state from over 100 countries, the ambitious aim of the United Nations Conference on Environment and Development (UNCED) – the Earth Summit – was to try to reconcile the necessity for global environmental protection with the need for ongoing economic development.

At UNCED, countries reached consensus on a number of key areas:

- The Rio Declaration, outlining 27 fundamental principles of environment and development. The declaration is a first step towards an Earth Charter envisaged by Canada and others to integrate environmental and economic goals.

- A statement of Guiding Principles on Forests, the first international consensus ever negotiated outlining governments' responsibilities for the sustainable development of all types of forests.
- Agenda 21, a first ever, comprehensive global blueprint for sustainable development, covering 39 different economic, social and environmental issues, and representing input from all the nations of the world. It outlines an agenda for action on cross-cutting issues such as technology transfer, trade and aid, as well as more specific issues such as marine pollution and biodiversity.
- The Framework Convention on Climate Change, in which developed nations agree to limit emissions of greenhouse gases and to report publicly on the progress they are making. Developed countries also agree to provide developing countries with resources and technology to assist them in meeting their obligations under the Convention.
- The Convention on Biological Diversity, that provides a foundation for international co-operation to conserve species and habitats.
- A Fisheries Conference, to be held in 1993, to address the urgent problem of overfishing on the high seas.

In December, 1992, the federal government released *Canada's Green Plan and the Earth Summit*, which provides an overview of the results of UNCED, its immediate priorities and actions under way.

Following the Earth Summit, the development of implementation strategies began for both the Climate Change and Biodiversity Conventions. On December 4, 1992, Canada

became the first major industrialized nation to ratify both conventions.

Canada is also assisting developing countries to formulate their own sustainable development plans, such as the Green Plan, and promoting the work of the Commission on Sustainable Development, Canada's International Development Research Centre, and the United Nations Environment Program.

In January 1993, Canada hosted a meeting of like-minded states in St. John's, Newfoundland to consolidate and plan a collective strategy for the United Nations Conference on measures for ending high seas overfishing. That U.N. Conference will be held in New York in July 1993, and will provide a forum for Canadian policies on conservation and sustainable development principles for the fishery.

Canada involved all sectors in developing its program for the Earth Summit. That consultative practice is continuing now, under the auspices of the National Round Table on the Environment and the Economy, as Canadians work together to meet the commitments made at Rio and to set a common course of action.

Stabilizing national emissions of CO₂ and other greenhouse gases at 1990 levels by the year 2000.

Responding to the climate change challenge requires sound science and concerted action on the domestic and international fronts. The Framework Convention on Climate Change, a product of the United Nations Conference on Environment and Development (UNCED) held in Brazil in June 1992, is an important initial step in international efforts to deal with climate change. Throughout the Convention negotiations, Canada sought a firm commitment from all industrialized countries to stabi-

lize emission of CO₂, and other greenhouse gases not controlled by the Montreal Protocol, at 1990 levels by the year 2000. While the Convention does not formally commit to this target and schedule, industrialized nations have agreed to establish actions aimed at achieving that goal.

On December 4, 1992, the Convention was officially ratified by Canada, under the Prime Minister's signature. An assessment of the progress Canada is making in stabilizing greenhouse gas emissions will be part of Canada's first National Report under the Climate Change Convention.

In 1992, Canada acted to ensure that the international momentum created during the Convention negotiations was maintained. The Convention enters into force when ratified by 50 countries.

Canada was instrumental in the November 1992 adoption by the Intergovernmental Panel on Climate Change (IPCC) of a workplan to meet the scientific needs of the Convention, including a new scientific assessment by 1995. At the same time, Canada became the Co-Chair of a new IPCC working group to address the economic aspects of climate change.

In October 1992, Canada sponsored a first meeting to ensure an effective linkage with the Global Environment Facility (GEF) so that the Convention successfully meets its objectives.

Canada is the only industrialized country to work bilaterally with China (Beijing Province) on identifying the challenges and opportunities in meeting the requirements of the Convention. Canada is also working with Mexico, Tanzania and Zimbabwe on country studies involving the development of emissions

inventories and emissions-limitations options. In 1992 and 1993, Canada is contributing funds to the World Meteorological Organization for increasing the capability of developing countries to meet Convention requirements.

In order to reduce emissions of greenhouse gases in Canada, all levels of government, industry and individuals are working in partnership to improve energy efficiency across a broad spectrum of uses.

The new federal *Energy Efficiency Act* received Royal Assent on June 23, 1992. Under it, the federal government is developing regulations for energy-using equipment. Memoranda of Understanding are in place or being negotiated with utilities to assist federal departments to improve the energy efficiency of their facilities.

Licensing agreements with provincial home builders' associations for the use of the R-2000 logo and supporting materials and contribution agreements with five partners to market and promote the program have been reached. Ten model advanced houses are being constructed across Canada to develop and commercialize new technologies for energy-efficient homes and to test energy efficient appliances.

Twenty-seven corporations with national operations have committed to participate in the Energy Innovators Ventures Program, which encourages Canadian corporations, institutions and municipalities to adopt energy-efficient technologies as a profitable way of reducing or preventing pollution. The Advisory Council on Industrial Energy Efficiency is being established in conjunction with industrial sector task forces as the principal mechanism to effect energy efficiency in the goods-producing sector.

As part of the alternative fuels program, an agreement has been reached with Newfoundland to introduce automotive propane to that province, and agreements to demonstrate methanol flexible fuel vehicles have been reached with British Columbia, Alberta and Ontario.

In the agricultural sector, the feasibility of producing ethanol fuel is being investigated as are feed supplements to reduce methane emissions from cattle and manure, and technologies to reduce nitrous oxide emissions from fertilizer use.

Under Tree Plan Canada, 114 community-based projects have planted five million trees. Thirteen corporate sponsors are supporting the National Tree Planting Foundation and discussions are underway with 160 others.

Actions taken by an informed public in everyday activities are also important. Under the Environmental Citizenship Initiative, education efforts have been launched to help Canadians learn about global warming and participate in reducing greenhouse gas emissions.

To support effective policy, the government's science program is now determining the rate, extent and regional distribution of global warming and its impact on Canada. Canadian participation in a large-scale international experiment has been started to clarify the role of forests in climate change processes. A Canadian research consortium on climate change and ocean circulation is in place. Socio-economic impact studies of global warming on the Mackenzie Basin, Prairies and Great Lakes - St. Lawrence are under way. As well, the first report on the state of the climate was released.

Goal 6: Environmentally Responsible Decision-Making

Provision of timely, accurate and accessible information to enable Canadians to make environmentally sensitive decisions.

The Green Plan recognizes that environmentally responsible decision-making requires good, accessible and understandable environmental information on which governments, businesses and individuals can make environmentally sound decisions. That was the purpose behind the 700-page State of the Environment Report, one of the most comprehensive examinations of a nation's environment ever undertaken.

Factual reporting on the environment is also the purpose behind the Environmental Information Initiative. One component of that initiative is the release, on a regular basis, of a comprehensive set of environmental indicators. These are selected key statistics that represent or summarize some aspect of the state of the environment, natural resource assets and related human activities. They focus on trends in environmental change and convey how the environment is responding to both stresses and societal responses to these conditions.

The indicators will monitor the environment's vital signs, and provide a snapshot or profile of the state of Canada's environment in the same way that economic indicators, such as interest rates, unemployment rates and the Gross Domestic Product, are used to measure how well the economy is performing.

The first indicator bulletin on Stratospheric Ozone Depletion, released in November 1992, listed domestic supplies of ozone-depleting substances in Canada, the global atmospheric concentrations of CFCs, and the ozone levels over Toronto, Edmonton and Resolute. Bulletins on Stratospheric Ozone Depletion will be produced annually so that Canadians can measure their progress in eliminating CFCs and other ozone-depleting substances.

More indicator reports on toxic contaminants in the environment, climate change, energy, fisheries, outdoor urban air quality and urban consumption patterns are under development.

Canadians are particularly concerned about the effects of environmental pollution on their health and safety. We know that contaminants, such as toxic chemicals, can have serious health implications. We know that air-borne pollutants contribute to respiratory illnesses, and that the very old and the very young are more vulnerable to the effects of environmental pollution.

The Action Plan on Health and the Environment includes measures to provide individuals and groups with the scientific information they need for informed decision-making. In June 1992, the Minister of National Health and Welfare released *A Vital Link: Health and the Environment in Canada*, a thorough account of contemporary environmental health issues that describes the effect of environmental contaminants on human health; the results of scientific studies; and Health and Welfare Canada's role in protecting Canadians from health hazards.

Goal 7: Minimizing the Impact of Environmental Emergencies

Quick and effective response to threats posed by pollution emergencies due to human activity and naturally occurring environmental emergencies.

Canadians are familiar with the threats to the environment and to public health when there is an oil spill, a chemical spill, a fire in a building containing hazardous material, or a severe weather event such as flooding or a tornado.

The Green Plan responds to both types of emergencies: those created by human activity and those created by nature.

The Marine Spills Prevention and Response initiative has brought needed equipment and trained personnel to many areas of Canada vulnerable to oil and chemical spills. The Coast Guard has increased marine navigational support and aerial surveillance activity on the east and west coasts and the St. Lawrence River. As well, inspections of foreign vessels visiting Canada has risen to 38%, from 16% in 1991 and 8% in 1990, to ensure compliance with Canadian law. The international minimum standard is 25%.

National and regional contingency plans in the event of an oil spill are being developed. All Coast Guard icebreakers now carry spill response equipment. In the Arctic, pollution countermeasures equipment has been stationed at Iqaluit. Training of volunteers has also been increased under the Green Plan. Discussions are under way with Inuit groups on community involvement in responding to a spill. In Placentia Bay, Newfoundland, 70 fishermen have been trained to use the spill response equipment placed there.

Land-based spills have not been ignored. Research and training in prevention and response techniques has been increased. The Major Industrial Accidents Council of Canada (MIACC) is developing measures for spill prevention, emergency preparedness, public education, and contingency planning standards and guidelines. In the area of spill response, Environment Canada's Environmental Technology Centre in Ottawa purchased two truck chassis and converted them into specialized spill-response vehicles. As well, the Centre's prototype mobile analytical laboratory has been upgraded to allow analysis of a wider range of toxic compounds. This analytical equipment was used at the Oakville, Manitoba chemical train derailment to verify that homes, businesses and feed lots were safe before evacuees were permitted to return to the town.

In the field of prediction and early warning of severe weather, a satellite-based communications system is in place in seven regional offices to receive and process water and meteorological data related to flood forecasting. Weather offices are being modernized. A new supercomputer is operating at the Canadian Meteorological Centre in Montreal. It will improve weather forecasting, improve the information provided in cases of nuclear, volcanic and toxic gas releases and aid in climate change research. There is also a new information service called "Weathercopy" which uses state-of-the-art technology to provide up-to-date printed information on environmental and weather hazards.

TARGETS, PROGRESS AND PLANS

LIFE'S THREE ESSENTIALS – CLEAN AIR, WATER AND LAND

Action Plan on Health and the Environment: The Action Plan involves initiatives in four broad areas: Regulation and Monitoring, to identify and respond to health risks from environmental contaminants; Protecting Groups at particular risk from environmental hazards, including aboriginal people and northerners who rely on special diets and newborn infants and children whose bodies are still developing; Facilitating Individual and Community Action, to improve and protect their health; and Contributions to International Initiatives, focusing on health effects of activities outside our borders, and bringing a Canadian perspective to international discussions on health-related environmental issues.

TARGETS AND SCHEDULES

In 1991, the Minister of National Health and Welfare will release the Health and Environment Action Plan. This plan will contain the detailed measures necessary to identify and address certain human health problems associated with environmental pollution (Green Plan, page 28).

PROGRESS DURING YEAR TWO

Since the Plan was released, action has been taken in each of its four broad areas. The regulatory and monitoring component has allowed acceleration of health assessments in support of the toxic substances Priority Substances List (PSL) process under the *Canadian Environmental Protection Act* (CEPA). Twenty-six health assessments have been undertaken to date; these are integral to the overall PSL process.

The Green Plan goal is to complete the combined health and environmental assessment of 44 priority substances by 1994. As of March 1993, six full PSL assessment reports had been released. Full assessments were also completed on an additional 14 substances in the areas of commercial chemicals, industrial contaminants and industrial effluents.

PLANS FOR YEAR THREE

The remaining substances on the PSL will be assessed for their health risks, and candidates for future health assessments will be identified. Completed assessment reports will be released.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

Assessments of the health risks posed by exposure to a variety of common air contaminants were begun. In collaboration with provincial and regional environmental authorities, studies were undertaken in Windsor, Ontario and the Fraser Valley of British Columbia. Toxicology studies of air pollutant mixtures and biological responses in susceptible animals were conducted.

Through the St. Lawrence Health Effects Program, consultations were held to set research priorities, an analysis of human tissue samples (for the presence of chemical contaminants) from fishermen was completed, and a video informing fishermen on how to minimize risk was produced.

Under the Drinking Water Safety Program for Native People, an agreement was reached with the Assembly of First Nations to ensure that native people participate in establishing and meeting safe drinking water objectives. Sampling was undertaken to establish baseline data on the chemical characteristics of community water supplies on reserves. A First Nations water treatment plant operators training program is being developed.

PLANS FOR YEAR THREE

Epidemiological and field studies will be extended to Toronto, Montreal, St. John, Ottawa and other sites. A multi-centre, multi-year study to examine the effects of aerosols on health will begin. Research will be conducted on the relation between noise levels and stress, as the basis for public health protection guidelines. Evaluations of the linkages between disease and exposure to electromagnetic fields will be undertaken. The nuclear power reactor monitoring program will be expanded. The National Reference Centre for In Vivo and Bioassay Measurements will be upgraded to accurately measure internal contamination of women and children.

In-depth research will begin to identify population risks through epidemiological investigations, toxicology evaluations, exposure and tissue surveillance, impact modeling and community consultation.

Baseline sampling, Water Treatment Plant Operators training package, and primary consultations with First Nations will be completed.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

The Effects on Aboriginals from the Great Lakes Environment (EAGLE) project was established in partnership with Health and Welfare, the Assembly of First Nations, and First Nations communities.

The Great Bear project, in partnership with the Grand Council of Treaty 8, was also established to study environmental contaminants within the Peace, Athabasca and Slave River Basins. Other studies have been initiated with First Nations throughout the North.

Through the Environmental Disease Surveillance initiative, a Western Canada Cancer Incidence Atlas was published, an international symposium on the health effects of ultraviolet radiation and a workshop on the environmental causes of asthma were held. A study was undertaken with Statistics Canada on the feasibility of establishing a cancer "hot spot" monitoring system.

A pilot Food Risk Assessment survey in Toronto was completed, and the analysis of samples for chemical contaminants is under way. Contracts have been let with Kemptville Agricultural College to study food preparation and composting, and with Dalhousie University to conduct analysis of trace elements.

PLANS FOR YEAR THREE

A comprehensive eating patterns study and a pilot health study will be undertaken through the EAGLE project.

Under the Northern and Arctic pollution initiative, the Great Bear project will develop along EAGLE lines.

A conference on cancer and the environment will be held, and a Health and Environment Consultative Committee will be formed. The existing cancer surveillance system will be enhanced, in conjunction with provincial cancer registries, in order to determine if a link exists between certain cancers and specific environmental agents.

The chemical contaminant levels in foods in two Canadian cities will be assessed.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

Under the Pregnancy and Child Development initiative, a five-year contract was negotiated with the Prince Edward Island Reproductive Care Program. The study has begun to collect prenatal data, information on pregnancy outcomes and on childhood health, and will involve some form of environmental monitoring for every pregnant woman in PEI (2,000 per year). Feasibility studies are under way in five centres to collect data on the risks of a spectrum of adverse reproductive outcomes (e.g., low birth-weight, stillbirths, prematurity, intra-uterine growth retardation) due to environmental factors.

In the Northwest Territories and Yukon, health hazard assessments were conducted on cadmium in caribou, and toxaphene, PCBs and dioxins in fish. Work began with Laval University on the development of a database of 80 chemicals, 80 species and 10 regions in northern Canada.

On June 4, 1992, *A Vital Link: Health and the Environment in Canada* was released. The 160-page report is a thorough account of environmental health issues.

Through the Active Living and the Environment Program, Go for Green has registered more than 1,000 community participation activities. A comprehensive consultations and planning process has produced a series of provincial and territorial action plans.

PLANS FOR YEAR THREE

Protocols will be developed with the centres on the development and validation of questionnaires, and on strategies for collecting, storing, transporting and analyzing biological samples. Work will begin on the development of a Native Pregnancy and Childhood Disease Atlas.

Food and human tissues will be analyzed for chemical contamination.

Bilateral agreements will be established with provincial and territorial networks as the first step in action plan implementation.

TARGETS AND SCHEDULES

In 1991, the federal government will introduce a Drinking Water Safety Act (page 35).

The federal government will publish a series of guidelines and codes of practice to help local authorities deal with groundwater problems (page 35).

PROGRESS DURING YEAR TWO

The Healthy Environments Program, aimed at facilitating individual and collective action, supported 10 national organizations to act on environmental health concerns and conducted a survey-consultation on environmental health priorities

A draft memorandum of understanding with Labour Canada on enforcement of drinking water quality standards for public servants has been completed. Research and evaluation studies on the quality of drinking water are under way.

The federal-provincial groundwater working group published the first two of a series of guidelines for groundwater management. A questionnaire has been circulated to identify and prioritize other guideline topics.

PLANS FOR YEAR THREE

Public awareness and information activities will be developed and implemented, and regional workshops will be held.

Draft legislation will be developed. National surveys on chemicals in drinking water will be completed.

A national workshop will be held with provinces and other interested parties to establish priorities for groundwater protection and management guidelines. The objective is to develop a national strategy for groundwater protection and management.

Indian Health and Water: Through the Green Plan, the establishment and improvement of water and sewage services on reserves is being accelerated. Capital project planning depends on the results of consultation with native communities regarding priorities, scope and scheduling of infrastructure projects. Most of the funds and projects will be managed directly by Indian bands.

TARGETS AND SCHEDULES

The Government will significantly accelerate the provision of water and sewer systems to Indian reserves in order to address health and safety problems. Virtually all the projects will be administered and implemented by Indian communities (page 35).

PROGRESS DURING YEAR TWO

As of 1992, 91% of existing houses on reserves had adequate potable water and 80% had proper sewage systems.

PLANS FOR YEAR THREE

Work on completion of the targets will continue. The backlog of water and sewer services will be reduced by 50% by 1996-97.

Fraser River Basin Action Plan: Introduced in 1991, the program promotes sustainable development of the Fraser River Basin ecosystem through partnerships among government and non-government agencies, the First Nations, and the people who live and work in the basin. It will contribute to pollution clean-up and prevention, restore natural productivity, protect wildfowl and their habitat, increase fish stocks (particularly salmon), intensify enforcement of the Fisheries Act and the *Canadian Environmental Protection Act*, and ensure that objectives for water and environmental quality are set and maintained. Funds are also being provided to aboriginal peoples living in the basin under the Aboriginal Fisheries Strategy.

TARGETS AND SCHEDULES

By 1992, a mechanism will be established to co-ordinate the various components of the program, work with communities and industries along the Fraser, and provide the public with the information it needs to support these efforts (page 36).

PROGRESS DURING YEAR TWO

An agreement was signed with the provincial and local governments, committing all three levels to jointly develop and implement programs for the basin's sustainability. The agreement called for the establishment of a Fraser Basin Management Board that has the mandate to: facilitate coordination of all activities in support of sustainable development; provide leadership in designing and implementing new institutional arrangements; recommend priorities for programs and budgets; and audit progress towards sustainable development. The Board is now operating with 19 members and a small secretariat.

An interactive video display and other communications initiatives to promote sustainability were launched. Scientific studies on fish and wildlife populations and habitat carrying capacities, projects to restore habitats (such as stabilization of the clay banks on the Chilliwack River and augmenting water flows on the Bonaparte River) were undertaken, and water quality monitoring was enhanced.

PLANS FOR YEAR THREE

The Board will develop a strategic plan to guide its activities and report on its progress. Several steering committees will be set up to provide analysis capability to assist the Board in its deliberations. The Board will continue to consult widely throughout the Basin in order to establish regional processes to provide local input to the Board.

Projects will be conducted on: biodiversity; forestry, agriculture and mining; fish and fish habitat; inventories of pollution sources, contaminated aquifers and contaminated sites; and assessments of environmental quality and ecosystem integrity.

Atlantic Coastal Action Program: The program's objective is to help protect, restore and enhance coastal ecosystems at 13 sites in Atlantic Canada by assisting a committee of local stakeholders at each site to develop a Comprehensive Environmental Management Plan (CEMP). This plan forms the basis for achieving sustainable development of the resources of the harbour and coastal area and its associated watersheds. Each committee undertakes the development of local partnerships, the involvement of the community, the leadership in the development of the plan, and the development and implementation of demonstration projects in its area.

TARGETS AND SCHEDULES

The federal government will support efforts to restore Atlantic "hot spots" over the next five years. In developing and implementing remedial action plans, the Government will work with the provinces, local governments, industry and other stakeholders to establish targets and schedules for the control of pollution sources (page 37).

PROGRESS DURING YEAR TWO

Thirteen sites under the Atlantic Coastal Action Program have been identified: Annapolis, Pictou, Mahone Bay-Lunenburg and Sydney, Nova Scotia; St. Croix, Miramichi, Madawaska and Saint John Harbour and Letang Estuary, New Brunswick; Bedeque Bay and Cardigan Bay, Prince Edward Island; St. John's and Humber Arm, Newfoundland. Multi-sector community-based programs have been initiated at 12 of the 13 sites. Public and corporate guidance manuals have been drafted.

PLANS FOR YEAR THREE

The Government will help fund public participation, initiate environmental quality assessments, identify remedial actions and begin projects to demonstrate alternative approaches to sustainable resource management.

Great Lakes-St. Lawrence Pollution Prevention Plan: The initiative, introduced in 1991, consists of three components: strategy development; demonstration projects; and education and awareness. It complements remediation efforts under the St. Lawrence and Great Lakes Action Plans launched in 1988.

TARGETS AND SCHEDULES

Canada will establish a Great Lakes Pollution Prevention Centre by 1992 to act as a focal point for research and information activities. The Centre, a catalyst for action on pollution prevention and an information clearinghouse, will be linked directly to other research centres such as the Canada Centre for Inland Waters, McMaster University and the St. Lawrence Centre (page 37).

PROGRESS DURING YEAR TWO

The Great Lakes Pollution Prevention Centre in Sarnia, Ontario, was officially opened in May 1992. A local advisory committee has been organized to advise Centre staff during the first year of operation and help plan for its future.

PLANS FOR YEAR THREE

After its first year of operation, the Centre will become "arm's length" from government. The Centre will continue to serve as a focus for pollution prevention activities in the Great Lakes basin. It will promote industrial, municipal, provincial as well as federal pollution prevention initiatives through information exchange, education and outreach activities.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

A memorandum of understanding was signed in May 1992 between Environment Canada, the Ontario Ministry of the Environment and participating member companies of the Motor Vehicles Manufacturers' Association (Ford, Chrysler and General Motors), to provide a verifiable reduction of persistent toxic substances as well as other environmental contaminants of concern which are used, generated or released.

A joint action plan for a binational program to restore and protect Lake Superior was signed by the governments of Canada and the United States in October 1991.

Consultations began on the development of sectoral pollution prevention strategies for 10 major socio-economic sectors in the St. Lawrence basin, and an advisory committee is being formally established. Technical reports were prepared for four of the 23 priority interest zones (PIZ), and integration reports prepared for two. Information sessions for managers working in plants located along the St. Lawrence are being designed. The zero-waste pollution prevention demonstration project for F.F. Soucy is continuing; waste from the plant has already dropped by over 75%.

PLANS FOR YEAR THREE

New industrial sectors will be approached to become cooperative partners with government for pollution prevention. At least two Canada-U.S. twin-city municipal projects will be established to develop and implement comprehensive pollution prevention plans.

A report of the program will be released outlining how successful the plan has been in meeting its commitments.

Five sectoral strategies are to be developed. Six Priority Interest Zones technical reports and two integration reports will be prepared. Three integration demonstration projects will be implemented and three other demonstration projects prepared.

Canada-Alberta-NWT Northern Rivers Basin Study: The three-and-a-half-year technical study, begun in 1991, will gather comprehensive information on the cumulative impact of development on the Peace, Athabasca and Slave rivers, and will examine hydrology, hydraulics, water quality, fish, fish habitat, and the use of aquatic resources. It is managed by a study board composed of 25 representatives from municipalities, aboriginal communities, government, industry, and the health, agricultural, educational and environmental sectors.

TARGETS AND SCHEDULES

Together with provincial and territorial governments, the federal government will participate in a three-year environmental impact study on the cumulative effects of existing and proposed developments in the fulfilment of the recent recommendations of the Alberta-Pacific Environmental Impact Assessment Review Board (page 37).

PROGRESS DURING YEAR TWO

Field, analytical and interpretive activities relating to oil sand contaminants in the Athabasca River, and pulp and paper effluent contaminants were conducted. The first annual report for the study was released in August 1992. In October, the first three project reports were released. A contract was also signed with the Grand Council of Treaty 8 First Nations to facilitate the gathering of traditional knowledge in northern Alberta and in areas of the Northwest Territories.

PLANS FOR YEAR THREE

The study board has approved new work to be completed in early 1993, including field projects examining water quality, fish health and river flows. Synthesis of the results from last year's projects and review of the preliminary findings from this next round will dictate the specific nature of follow-up work. The second annual report will be published in June, and the first significant scientific results will be released. The public consultation program will focus on determining traditional uses of the aquatic resources in the basins.

National Conference and Trade Show on Water Conservation: While water pricing and water infrastructure are the responsibility of local governments, the federal government believes that cooperative efforts are needed to promote wiser water use in Canada.

TARGETS AND SCHEDULES

The Government of Canada will sponsor a national conference in cooperation with the provinces, communities and the private sector to promote wiser water use through improved demand management, realistic pricing and the development and application of water conservation technologies (page 39).

PROGRESS DURING YEAR TWO

The first National Conference and Trade Show on Water Conservation was held in Winnipeg in February 1993. More than 400 delegates and 50 exhibitors participated in this thought-provoking event, and a series of recommendations and future directions were developed through 15 workshops dealing with specific aspects of water efficiency and how to achieve it.

PLANS FOR YEAR THREE

As a result of the positive response from participants, options for future conferences will be investigated.

Control of Ocean Dumping: The Action Plan, introduced in 1991, includes improved regulations under the *Canadian Environmental Protection Act*, enhanced surveillance, and a national research and information program to reduce persistent plastics.

TARGETS AND SCHEDULES

In order to ensure the ongoing protection of Canada's coastal waters, the Government will put in place, effective immediately, a five-year Ocean Dumping Action Plan (page 41).

By the end of 1991, a discussion paper on a Canada Oceans Act will be released by the Minister of Fisheries and Oceans for public discussion. The proposed act will, among other things, provide a legal basis for the protection of the marine environment consistent with international law, and designation of marine protected areas (page 42).

PROGRESS DURING YEAR TWO

Ocean dumping regulations amendments have been drafted and will be published in 1993. They propose increased application fees and a new single application form. Dumpsite monitoring guidelines are under review. Pitch-In Canada, a national environmental group, is working with volunteers to determine how much, what kind and the source of plastic debris discarded in our oceans.

PLANS FOR YEAR THREE

A discussion paper on the second phase of the regulatory amendments will be released. Proposals include new environmental assessment procedures and standards to better evaluate effects on the marine environment. Dump site monitoring guidelines will be field tested. Plastic debris surveys and public education activities will continue with broader partnerships involving environmental groups, federal departments, the provinces and industry.

A discussion paper will be released after consultations with provinces are completed.

Toxic Substances: Through this program, the federal government has stepped up efforts to reduce or eliminate toxic substances. Key program components are an acceleration of the Priority Substances Assessment Program to assess 100 substances by the year 2000; compilation of a National Pollutants Release Inventory as a comprehensive, nationwide data base of major Canadian industrial pollutants by site; and development of Industrial Sector Strategic Options Reports to recommend an integrated strategy for addressing the environmental issues in 10 industrial sectors. A National Office of Pollution Prevention was established in July 1991 to develop and promote the concept of pollution prevention and integrate departmental activities, and encourage voluntary industry action to reduce pollutants and wastes.

TARGETS AND SCHEDULES

Over the next five years, the Government will introduce regulations or other controls for all substances that are declared to be toxic, including commercial chemicals and effluents, wastes and emissions from major industrial sectors (page 47).

PROGRESS DURING YEAR TWO

The Green Plan goal is to complete the combined health and environmental assessment of 44 priority substances by 1994. As of March 1993, six full PSL assessment reports had been released. Full assessments were also completed on an additional 14 substances in the areas of commercial chemicals, industrial contaminants and industrial effluents.

In February 1992, the Government enhanced programs designed to keep toxics out of the environment. The initiative provides additional resources to accelerate and expand the federal government's regulatory action plan to control toxic substances under the *Canadian Environmental Protection Act* (CEPA) and the *Fisheries Act*.

The Accelerated Reduction-Elimination of Toxics (ARET) process was initiated following recommendations from the New Directions Group. ARET involves industry-environmental group cooperation in voluntary accelerated reduction, and elimination or phase-out of selected persistent toxic substances. ARET has defined its plan of action and established criteria for selection of candidate substances.

PLANS FOR YEAR THREE

Completed assessments will be released and the remaining substances will be assessed. For those priority substances declared "toxic," consultations on strategic (control) options reports will begin for key industrial sectors.

The process to revise the Priority Substances List is under way. The goal is to publish the revised list in 1994 and every three years thereafter, and to complete 100 assessments by the year 2000.

A candidate substance list will be announced and targets and schedules for action will be set.

TARGETS AND SCHEDULES

The proposed federal regulations for the control of emissions of dioxins and furans from pulp and paper mills, and amendments to the *Fisheries Act* regulations setting new limits on other pulp and paper industry effluents, will be issued in 1991 and will be in full force by 1994 (page 47).

To develop a better understanding of the nature and quantity of toxic substances being released in Canada, the Government will develop a national data base for hazardous pollutants being released from industrial and transportation sources. The reporting requirements for industry will be established by 1992,

PROGRESS DURING YEAR TWO

In March, the Fisheries and Oceans Toxic Chemicals Program was introduced to assess the impact of toxic substances on fish and their habitat. Key elements of the program include development of a national data base by 1997 to identify the levels and effects of toxic substances on major Canadian fish stocks; and increased assessment activities on toxic substances in support of a national regulatory action plan to control toxic chemicals under CEPA and the *Fisheries Act*. This action plan will include a review of effluent regulations. Assessments of aquatic hot spots and regional aquatic ecosystems, monitoring of toxic chemical trends in key fish species and development of a data management system began.

The Pulp and Paper Regulatory Package came into full force in December 1992. These new regulations require industry to make changes to pulp and paper processing which will prevent the formation of dioxins and furans, greatly reduce organochlorine levels overall and strictly control conventional pollutants in pulp mill effluents. Transitional Authorizations have been issued to certain pulp and paper mills to allow them more time to upgrade their mills to meet the new effluent standards.

In March 1993, the Minister of the Environment accepted the recommendations of a multi-stakeholder advisory committee on the design and procedures for the National Pollutant Release Inventory (NPRI). Starting in 1993, companies who meet the reporting criteria will have to collect information on

PLANS FOR YEAR THREE

Assessment of the Gulf of St. Lawrence will be completed. Monitoring of toxic chemical trends in key fish species will continue, with emphasis on the East Coast, West Coast and Great Lakes ecosystems. A national inventory system will be initiated. Research on the fate and effects of toxic chemicals on fish and fish habitat will continue.

New toxicity and genotoxicity bioassay techniques and chemical methods for use in the management of toxic substances will be evaluated, and the chemical characterization of substances in pulp mill effluents responsible for sublethal effects in fish will be reported. The second year of a two-year program, to determine the identity of toxic components in pulp mill effluents and the effect of mill operations on toxicity, will also be completed.

In 1993 and 1994, governments, industry, labour and environmental groups will continue work reviewing the NPRI list of substances (which currently includes substances such as benzene and vinyl chloride), a process for updating the list, how best to disseminate NPRI data and the costs of NPRI reporting.

TARGETS AND SCHEDULES

with the first reports scheduled for public release no later than 1994 (page 49).

In 1992, the federal government will establish a National Toxicology Network at universities. It will work with universities and other partners to establish toxicology research centres across Canada so that resources and information can be shared (page 50).

By 1992, regulations will be developed and released under the *Canadian Environmental Protection Act* requiring notification of new products of biotechnology prior to their release or introduction to the market on a commercial basis (page 50).

PROGRESS DURING YEAR TWO

releases of any of 178 specified substances into the air, water and land. The release information on these substances, that are potentially harmful to the environment or to human health, will be reported annually to the government. This information will be made public, and will help industries and federal and provincial governments develop environmental management programs and pollution prevention plans.

The Network is operational, and published its strategic operating plan in December 1992. It will support scientists conducting toxicology research at Canadian universities. Participating universities include the Centre inter-universitaire de recherche en toxicologie of the Université du Québec à Montréal and the Université de Montréal; the University of Guelph; and the University of Saskatchewan.

The biotechnology products component of the Domestic Substances List, and notification regulations for new biotechnology products have been drafted.

A directory of biotechnology companies, research institutes, and product users that will be subject to the new substances reporting regulations under CEPA is being developed.

On January 11, 1992, federal regulatory departments announced the principles for a more efficient and effective regulatory framework for Canadian biotechnology.

PLANS FOR YEAR THREE

Pilot cross-Canada research programs will begin in 1993.

The regulations for new biotechnology products will be published.

The directory will be released.

The principles will be the basis of a federal regulatory framework for biotechnology, ensuring that the practical benefits of products and processes are balanced against the need to protect the environment, human health and safety.

Smog: The national smog program, introduced in 1991, will enable the federal government to meet its commitments under Phase I of a federal-provincial management plan to reduce smog-causing emissions of nitrogen oxides (NOx) and volatile organic compounds (VOC).

TARGETS AND SCHEDULES

By 1991, the Government will begin negotiation of agreements with the provinces, identifying interim NOx and VOC emission targets for the year 2000 and setting out the actions each government will take (page 53).

In cooperation with the provinces, the federal government will pursue emission trading as part of its implementation of the overall smog control program. By 1992, the extent to which emission trading can be used in those urban centres most affected by smog, including the B.C. lower mainland and the Windsor-Québec and Saint John areas, will be determined (page 55).

By 1993, in cooperation with provincial and municipal governments, the Government will provide public advisories in major urban areas in B.C., southern Ontario, Quebec and the Maritimes on days when motorists could help reduce unacceptably high ozone concentrations by using public transit (page 53).

PROGRESS DURING YEAR TWO

Negotiation of federal-provincial agreements with all 10 provinces to achieve interim NOx/VOC emission reductions was delayed pending public consultations by the provinces, negotiations of federal-provincial co-funding options, and further scientific investigation of the smog situation in some provinces.

In 1992, the federal government and the auto industry announced an agreement to establish new, more stringent passenger car exhaust emission controls in Canada.

Emission trading studies were completed in Ontario and British Columbia.

In cooperation with the New Brunswick government, the forecasting methodology that will form the basis for public advisories was field-tested at the Maritimes Weather Centre in Bedford, Nova Scotia.

PLANS FOR YEAR THREE

Federal-provincial agreements are expected to be completed with British Columbia and Ontario. Agreements with Quebec and New Brunswick should progress to the definition stage.

Under the agreement, the auto industry will be phasing in emission controls for nitrogen oxides (NOx) and hydrocarbons (HC), the primary cause of ground-level ozone or urban smog, for the 1994 and 1995 model years. Regulations are being prepared that will require full compliance in the 1996 model year.

Emission trading programs will be incorporated into the federal-provincial agreements for those areas where such programs are considered appropriate.

Beginning in May 1993, public smog advisories will be provided in major urban areas in British Columbia, southern Ontario, Quebec and southwestern New Brunswick. Preventative measures, such as suggestions that motorists switch to public transit on high smog days, and sensitive individuals take precautionary measures, will be promoted.

TARGETS AND SCHEDULES

By 1995, the Government will develop a national consensus on the ultimate emission targets and actions necessary to achieve ozone air quality standards in all parts of Canada and amend the federal-provincial agreements accordingly (page 54).

PROGRESS DURING YEAR TWO

Environment Canada began work on the first phase of the federal-provincial NO_x/VOC Management Plan which included 31 emission control initiatives and 19 supporting studies. Five emission control initiatives and two studies were completed.

PLANS FOR YEAR THREE

Work will continue on the remaining emission control initiatives and studies and a series of NO_x/VOC/smog monitoring and modeling projects will be developed to support the establishment of the final emissions targets for the second phase of the Management Plan.

Waste Reduction and Management: Through the Canadian Council of Ministers of the Environment, national action plans for solid and hazardous waste are being developed. The Federal Waste Reduction Plan was released in 1991 following its endorsement by the CCME. The main components of the plan include creation of the first national inventory and profile of wastes and an expansion of the National Waste Exchange. The Office of Waste Management has been established to coordinate the plan, based upon the "four Rs:" Reduce, Reuse, Recycle, Recover.

TARGETS AND SCHEDULES

In cooperation with provincial and territorial governments, the private sector and community groups, the Government will promote the "four Rs" of waste management, and will expand the National Waste Exchange Program and establish an Office of Waste Management to coordinate federal programs under the National Waste Reduction Plan (pages 58-59).

PROGRESS DURING YEAR TWO

Working Your Way to a Green Office was released. The guide offers suggestions and provides examples of organizations that are making their offices more environmentally friendly in areas such as the use and disposal of paper and office products, energy and water use, transportation, meal and coffee breaks and procurement.

The National Round Table on the Environment and the Economy produced, with the Federation of Canadian Municipalities, a *National Waste Reduction Handbook*. It is designed to assist municipal decision-makers in meeting the 50% waste reduction target by the year 2000.

An industry-led Hazardous Waste Minimization Committee was established to develop a strategy to reduce hazardous waste by 50% by the year 2000.

PLANS FOR YEAR THREE

The Office of Waste Management will continue to develop communication products to support the promotion of the "four Rs" and the waste campaign under the umbrella of Environmental Citizenship. A Primer on Waste Management and fact sheets will be produced. The Office will also work towards developing partnerships to promote the concept of environmental citizenship.

The Committee will coordinate a number of initiatives to reduce hazardous waste requiring disposal.

TARGETS AND SCHEDULES

By 1993, the Government will establish standards and regulations to reduce waste from packaging materials. They will be employed in the event that voluntary government and industry actions do not achieve the 1992 waste reduction target of 20%, as set out in the National Packaging Protocol (page 58).

The Government will take further action to reduce the generation of hazardous wastes and ensure the safe movement and disposal of hazardous wastes in Canada. These measures will include, by 1992, developing a computerized tracking system to monitor the movement of hazardous wastes in and out of Canada, which will allow Canadian industry to participate more easily in international market opportunities to recycle these products (page 59).

Expand the National Waste Exchange Program with the objective of making it self-sufficient by the year 2000. The purpose of the program is to improve market opportunities for the re-use and recycling of industrial and large-volume wastes (page 59).

Domestic regulations to implement the provisions of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal are being drafted by the federal

PROGRESS DURING YEAR TWO

Preliminary survey data suggest that the Protocol's voluntary approach is proceeding successfully.

The development of a computerized tracking system to monitor hazardous waste was started. The hazardous wastes export and import regulatory package was published on December 2, 1992. This will enable the Government to better control the movement of hazardous wastes destined for disposal or recycling upon leaving or entering Canada, and to implement fully the provisions of the United Nations' Basel Convention. It will also allow Canada to fully implement the Organization for Economic Cooperation and Development decision on recyclables and continue to administer the transboundary movement of hazardous wastes between Canada and the United States in keeping with the 1986 Bilateral Agreement.

The Recycling Council of B.C. has been contracted to establish an industrial-commercial-institutional waste materials exchange database for British Columbia. The purpose of the database is to enhance the effectiveness of the existing passive exchange, and to provide the framework for a proactive materials exchange service.

On August 28, 1992 Canada ratified the United Nations' Basel Convention. The first meeting of parties to the Convention established working groups to deal with issues like

PLANS FOR YEAR THREE

Industry will again be surveyed to confirm if the first National Packaging Protocol target of 20% reduction has been reached. Following consultations with the provinces, regulations to reduce waste from packaging material will be drafted if the 20% reduction target is not met.

Environment Canada will complete the national inventory for hazardous and non-hazardous wastes, and publish regulations respecting hazardous waste at federal government facilities.

Canada will work with the United Nations Environment Programme, and the Organization for Economic Cooperation and Development, in developing and implementing procedures for transboundary movements of hazardous wastes.

Efforts will continue towards the expansion of the Waste Exchange Program with emphasis on projects which can demonstrate self-sufficiency.

Canada will continue to participate in the working groups and future meetings of the parties to the Convention.

TARGETS AND SCHEDULES

government and will be issued in 1991. Canada will be able to ratify the Basel Convention as soon as the regulations become law (page 60).

In 1989, the federal and provincial governments initiated a \$250 million, cost-shared, five-year program to clean up abandoned hazardous waste sites in Canada. The Government will work with the provinces to have in place, by 1991, agreements with participating provinces for the implementation of a program (page 60).

The Government will work with the provinces to support new technologies for site clean-up (page 60).

PROGRESS DURING YEAR TWO

liability and compensation, technical guidelines for sound management of hazardous waste, and tools for implementation of the Convention.

Agreements have been signed with 10 provinces and territories except Saskatchewan and Manitoba. Twenty-six orphan site remediation projects have been initiated.

The National Contaminated Sites Remediation Program Annual Report for the fiscal year 1991-92 was released in November 1992. This report includes a detailed look at specific site remediation and technology demonstration under way.

Twenty-four technology projects have been completed or are being undertaken across the country.

PLANS FOR YEAR THREE

Site remediation will occur at 30 high-risk orphan sites. The Canadian Council of Ministers of the Environment has established the goals of extending participation to include all jurisdictions, forge stronger links with industry in demonstrating innovative clean-up technologies and continued development of scientifically validated environmental quality criteria.

Low-Level Radioactive Waste: On August 21, 1991, the federal government announced the decision to complete the Cooperative Siting Process begun in 1988. The goal of this process is to find a site, with public acceptance, for a facility that will manage Canada's historic low-level radioactive wastes now located in the Port Hope, Ontario area. Since 1988, three of the five phases have been completed: terms of reference and operating guidelines were established; municipalities were briefed on the waste situation and process; five communities (three sources, two volunteer sites) were selected to be part of the process. Phase four involves technical, social and environmental assessments in each community. Phase five consists of transforming the outcome of decisions in Phase four into legal agreements acceptable to both the community and the federal government.

TARGETS AND SCHEDULES

No specific Green Plan commitment.

PROGRESS DURING YEAR TWO

Phase four is under way. General environmental and technical assessment studies and planning site-specific investigations, along with critical waste inventories were completed.

PLANS FOR YEAR THREE

Studies and investigations started in 1992 will be completed and preferred sites in volunteer communities will be selected.

SUSTAINING OUR RENEWABLE RESOURCES

Partners in Sustainable Development of Forests: This program, introduced in 1991, is a three-part strategy for better management of the forest resource. The strategy includes: development of a Model Forest Network, with each site applying the latest in scientific research and demonstrating new forest-management technologies; Enhanced Science and Technology to better understand forest ecosystems and to develop more sustainable forest-management techniques; and Information and Biomonitoring to improve environmental data bases and expand existing forest health-monitoring networks.

TARGETS AND SCHEDULES

The Government, in partnership with provinces and industry in the major Canadian forest regions, will encourage the creation of up to eight demonstration projects as working models of sustainable development. Forestry Canada will provide scientific and financial support to its partners in the program, the land owners and the land managers (page 62).

PROGRESS DURING YEAR TWO

On June 25, 1992, the location of 10 proposed forest sites to make up Canada's Model Forest Network were announced. The sites are: Long Beach Model Forest and McGregor Model Forest (British Columbia); Foothills Forest (Alberta); Prince Albert Model Forest (Saskatchewan); Manitou Abi Model Forest (Manitoba); Lake Abitibi Model Forest and Eastern Ontario Model Forest (Ontario); An Inhabited Forest (Quebec); Fundy Model Forest (New Brunswick); and Western Newfoundland Model Forest (Newfoundland).

Each of the Model Forests will be managed and funded through a partnership agreement between Forestry Canada and the Model Forest partnership group. Administrative agreements have been concluded for 8 of the 10 proposed sites.

In March 1992, the Canadian Council of Forest Ministers, aboriginal forestry associations, industry, labour and environmental groups signed the Canada Forest Accord and endorsed a new national forest strategy.

PLANS FOR YEAR THREE

Year three represents the first full year of operation for the Model Forest partnership groups. Work will commence to improve the integration of the multiple values of the forest resource in forest planning and management.

The Model Forest Network Annual Report will be published in September 1993. This is a joint endeavour between Forestry Canada and the Model Forest partnership groups and is designed to inform the public of the progress being made in the Model Forests.

Ministers are committed to developing action plans and encouraging others to do the same. Progress will be reviewed annually, evaluations conducted by an independent third party and the results published.

TARGETS AND SCHEDULES

The Government will accelerate and intensify its efforts to develop and deploy environmentally acceptable solutions [to the damage caused by insects and diseases] (page 63).

Forestry Canada will establish a national forest seed and gene bank to ensure that we preserve the genetic elements that compromise our natural forest heritage (page 64).

In 1991, the Minister of Forestry will release Canada's first report to Parliament on the state of Canada's forests (page 64).

Canada will participate actively in the development of the proposed international convention on forests in accordance with the agreement reached at the Houston Economic Summit. This will help to promote the sustainable development and conservation of the world's forests (page 65).

PROGRESS DURING YEAR TWO

Research networks have been established and strengthened to coordinate the development, commercialization and application of environmentally acceptable pest control strategies.

The storage facility was established at the Petawawa National Forest Institute as part of the National Forest Genetic Resources Centre.

The first report was released in 1991 and the second in June 1992. Those reports, national forestry balance sheets, provide the Canadian public with a comprehensive report on what is happening in its forests.

At the Earth Summit in June 1992, the international community negotiated a comprehensive document spelling out the economic and environmental obligations of governments in dealing with all types of forests. In December 1992, the UN General Assembly formally adopted the Earth Summit reports, including the Forestry Principles document, and called for their implementation.

Canada committed to assist in establishing international model forest projects in other countries over the next four years, to support international efforts to achieve sustainable forestry practices.

PLANS FOR YEAR THREE

Work will continue on the development of natural products as alternatives to synthetic toxins.

The enhanced program of research on forest genetic resources will continue.

The third report will be released.

Canada will continue to build on the Forest Principles to develop scientifically based and internationally agreed criteria for forest management, and ultimately to launch a forest convention.

Letters of intent for participation in model forest sites will be signed with a number of selected nations. Other donor nations will be encouraged to participate in expanding the network.

Sustainable Agriculture: To help make Canada's agri-food industry more environmentally sustainable, the federal Minister of Agriculture, in cooperation with provincial and territorial Agriculture Ministers, is now carrying out a three-part implementation strategy. First, the strategy entails strengthening partnership processes involving environmental sustainability through federal-provincial cost-shared agreements. Second, additional steps are being taken to ensure that environmental, economic and social considerations are all taken into account in the reform of agricultural policies and programs. Third, programs are being developed to involve all partners in a range of approaches including awareness, education, monitoring, research, technology transfer, demonstrations, technical and financial assistance, contracting and multi-resource planning.

TARGETS AND SCHEDULES

Canadians understand the importance of achieving a secure and well-managed resource base of agricultural land and soil. Actions that will be pursued with the provinces include extension of the existing National Soil Conservation Program, establishment of permanent cover on environmentally sensitive lands, development of shelterbelts, research on soil-conserving production systems, and creation of a new Eastern Canada Soil Conservation Centre (page 69).

PROGRESS DURING YEAR TWO

On January 15, 1992, the federal government introduced its program to help make Canada's agri-food industry more environmentally sustainable. This initiative will stimulate research, technology transfer, and other activities related to agriculture and the environment, such as soil conservation, surface and groundwater quality, wildlife habitat, air quality and climate change, energy use, pollution, waste management and genetic resources.

As part of this new initiative, cost-shared agreements are being developed with the provinces and territories to address environmental sustainability issues in the agri-food sector. Agreements were signed with Nova Scotia, Prince Edward Island, Ontario, Alberta and Quebec; negotiations are in the advanced stages in Manitoba, Saskatchewan, Newfoundland, New Brunswick, British Columbia, the Yukon and Northwest Territories.

PLANS FOR YEAR THREE

Activities aimed at achieving the sustainable development goals in agriculture will continue.

Agreements with the remaining provinces and territories are expected to be signed and activities undertaken in all regions of Canada.

Pesticide Registration: This program responds to the final report of the federal Pesticide Registration Review Team. It consists of an improved regulatory system for pesticides that enhances protection of human health and the environment, with effective pest management.

TARGETS AND SCHEDULES

In April 1989, the Government of Canada announced a broad multi-stakeholder review of the federal pesticides regulatory process. In July 1990, the Federal Pesticide Registration Review Team released its preliminary report outlining a proposal for a revised regulatory system. A final report is expected in 1991 (page 72).

PROGRESS DURING YEAR TWO

The final report was tabled in December 1990. On February 3, 1992, the federal government announced the improved regulatory system for pesticides.

The government implemented the new User-Requested Minor Use Label Expansion Program, re-opened negotiations with the U.S. on pesticides, and initiated the first phase of the electronic tracking system for registration of submissions. The Pest Management Alternatives Office, the Interim Canadian Pest Advisory Council, the Interdepartmental Executive Committee on Pest Management, and the Standing Federal-Provincial-Territorial Committee on Pest Management were established.

PLANS FOR YEAR THREE

Draft legislation will be proposed.

The Price Monitoring and Products Import Program, the Support for User-Requested Minor Uses Registration System, and the Pilot Electronic Tracking System for Submissions will be substantially advanced or completed.

Sustainable Fisheries: Canada's Green Plan includes a three-part strategy to address existing pressures on the fisheries resource, and to ensure the fishery's long-term viability: a National Sustainable Fisheries Policy and Action Plan in partnership with the provinces, territories, the commercial, recreational and aboriginal fishing communities, and other interested parties; expanded action to protect fish and their habitat, including enforcement and toxic substances assessment; and domestic and international measures to promote the sustainable use of Canada's fisheries.

TARGETS AND SCHEDULES

By 1992, the Government, in cooperation with the provinces, territories, the commercial, recreational and native fishing communities and other interested parties, will develop a National Sustainable Fisheries Policy and Action Plan (page 75).

As a key sponsor of the UN resolution on large-scale pelagic driftnet fishing, Canada is committed to the implementation of the resolution for a moratorium on all large-scale pelagic driftnet fishing by June 30, 1992, in the absence of effective conservation and management measures (page 77).

At the upcoming 1992 United Nations Conference on Environment and Development, Canada will pursue four specific objectives to ensure fisheries habitat protection and sustainability:

- an international sustainable fisheries strategy;

PROGRESS DURING YEAR TWO

Alternative approaches were examined as the basis for discussion with interested parties. Key elements, such as stakeholder committees, partnerships, and integrated approaches, are already in place in many parts of Canada.

Protocol II of the Wellington Convention, an anti-driftnetting convention developed in the South Pacific, was signed in 1991. That same month, Canada, Japan, the United States and the former Soviet Union agreed on the text of a new Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean. The Convention includes termination of the Japanese high seas salmon fishery conducted by some 150 driftnet vessels.

At the Earth Summit in June 1992, the international community agreed to hold a follow-up United Nations conference in 1993 to recommend measures for ending high seas over-fishing. In January 1993, Canada hosted a meeting of like-minded states in St. John's, Newfoundland to consolidate objectives and plan a collective strategy.

PLANS FOR YEAR THREE

Discussions will proceed on how best to ensure that sustainable fisheries initiatives across Canada are comprehensive and coordinated. The major goal for 1993 will be the development of a framework for ensuring a balanced approach to sustainable fisheries. This approach will build on traditional and stakeholder information, recognize and integrate the rights of native people, and share stewardship with our clients.

Canada is working with the Food and Agriculture Organization to develop an international convention to deter the practice of reflagging fishing vessels for the purpose of avoiding internationally agreed conservation measures applicable on the high seas.

The conference is scheduled to take place in New York in July 1993. It will provide a forum for developing rules to manage high seas fisheries according to conservation and sustainable development principles. It will also continue to focus international attention on current over-fishing on the high seas, increasing pressure to stop the practice.

TARGETS AND SCHEDULES

- an international framework for controlling land-based sources of ocean pollution;
- a strengthening of the provisions of the London Dumping Convention to combat ocean dumping; and a global ocean observing system (page 78).

PROGRESS DURING YEAR TWO

The Earth Summit's Agenda 21 includes recommendations for national and international commitments to coastal zone management and controlling marine pollution from land-based sources.

At the November 1992 meeting of Contracting Parties to the Convention, Canada was instrumental in developing a two-year amendment procedure for strengthening the Convention.

PLANS FOR YEAR THREE

Countries will report to the Sustainable Development Commission of the United Nations on plans for meeting their Agenda 21 commitments.

Amendments to the London Dumping Convention (now called London Convention 1972) will be addressed in the Ocean Dumping Action Plan.

OUR SPECIAL SPACES AND SPECIES

Protected Spaces: In the Green Plan, the national objective of setting aside 12% of the country as protected space was established. At the federal level, reaching this target means completing networks of protected areas - national parks, marine parks, wildlife areas and migratory-bird sanctuaries. Canada's cultural heritage will also be commemorated through the establishment of national historic sites.

TARGETS AND SCHEDULES

The Government of Canada will establish at least five new national parks by 1996 (page 80).

The Government of Canada will establish an additional three national marine parks by the year 2000 (page 80).

PROGRESS DURING YEAR TWO

On April 23, 1992, the Minister of Environment and the President of the Tungavik Federation of Nunavut announced that land had been set aside for a new national park to be created on northern Baffin Island.

Four months later, an agreement was signed to establish Aulavik National Park in the Western Arctic on Banks Island, the most westerly island in the Canadian Arctic Archipelago.

As the preliminary stage of the national parks establishment process, two feasibility studies were announced. The first is centred on the Lowlands region of Manitoba. The second focuses on the Torngat Mountains area of Northern Labrador.

The National Parks Act was amended on June 18, 1992 to provide authority to formally establish Gwaii Haanas National Marine Park Reserve in the Queen Charlotte Islands of British Columbia and provide for a cooperative agreement with the Haida Nation. An agreement was reached with the President of

PLANS FOR YEAR THREE

The Inuit Impact and Benefit Agreement, a precondition for conclusion of the park establishment agreement, is being negotiated.

Development of interim management guidelines will commence to provide conservation direction for the management of the park until the final management plan is completed in 1998. Awareness of the park and its resource conservation and protection objectives will be promoted locally.

Work will continue on both of the feasibility studies.

The final boundaries of Gwaii Haanas National Marine Park Reserve will be announced.

TARGETS AND SCHEDULES

The Government of Canada will provide additional assistance in undertaking studies, plans, resource evaluations and monitoring of designated rivers to provincial and territorial governments participating in the Canadian Heritage Rivers System (page 80).

The Government of Canada believes that, while we are making progress, we must accelerate our efforts towards meeting the target of setting aside 12% of Canada's total territory as protected space (page 80).

The Government will strengthen its scientific and protective measures over the next five years (page 81).

In 1991, the Government of Canada will adopt the Federal Policy on Wetland Conservation. Elements of the policy will include a system of secured wetlands of national importance; protection of wetlands on federal lands such as national parks, national wildlife areas and

PROGRESS DURING YEAR TWO

the Council of the Haida Nation on the joint operation of the park.

The boundaries for Saguenay Marine Park were confirmed with the province of Quebec; it will cover 138 square kilometres.

Two rivers were designated as part of the Canadian Heritage Rivers System: the Soper River, North West Territories, and the Seal River in Manitoba. There are now 15 designated rivers in the federal-provincial Canadian Heritage River System, as well as 11 nominated rivers, totalling over 5,750 kilometres.

The first ever joint Meeting of Canada's Parks, Wildlife and Environment Ministers was held in November.

For more information, see Goal 3 in previous section.

Partnerships were established to propose methods for protecting the ecological integrity of national parks. Vegetation management objectives and five management plans were prepared for 50% of the parks in fire zones.

In March 1992, the federal government unveiled a new federal policy to help conserve and better manage national wetlands. The Federal Policy on Wetland Conservation commits the federal government to sustaining and improving wetlands through its programs and

PLANS FOR YEAR THREE

Public consultations will be undertaken on the proposed park management plan. Discussion will take place with Quebec on legal aspects of park establishment.

Development of the Canadian Heritage Rivers System will be accelerated by supporting river studies leading to nominations, management planning and designations. The Board Secretariat will have an expanded role to co-ordinate monitoring of designated rivers and designation ceremonies, to promote the system and to provide public information and administrative and policy support to the Board.

Prevention and mitigation programs will be introduced.

The Wetland Ecosystem Vulnerability Study will be conducted with western universities. The study will examine and predict the responses of prairie wetland ecosystems to the different stresses of global climate change scenarios and agricultural land-use related disturbances.

TARGETS AND SCHEDULES

National Capital Commission lands; and wetland conservation as a fundamental goal of all federal land-use decisions (page 82).

The Government will commemorate seven key historic themes currently under-represented in the system by 1996, and an additional eight by the year 2000. The eight additional priority sites will represent most of the key resource development industries and settlements that were important to Canada's early history (page 89).

The Government will provide additional financial assistance to other governments and organizations for nationally important historic sites through cost-shared and cooperative agreements. This assistance will help provide opportunities for the restoration and interpretation of significant aboriginal heritage sites and sites representing the history of people's relationships with the land (pages 89-90).

PROGRESS DURING YEAR TWO

land management practices. Among the goals to help meet the policy's objectives, the federal government, in cooperation with the provinces and territories, will achieve no net loss of wetland functions on all federal lands.

Two federally operated sites were established. The first involved the commemoration of the West Coast fishing industry at the Gulf of Georgia Cannery National Historic Site in Steveston, British Columbia, and the second, the commemoration of the history of Canada's ranching industry at the Bar U Ranch National Historic Site, south of Longview, Alberta.

Seven cost-shared agreements were concluded to stabilize, restore and interpret threatened historic resources of national significance. The agreements provide for the operation of these national historic sites by partner agencies. The sites are Walker Theatre (Winnipeg, Manitoba), Old Stone Church (Beaverton, Ontario) and Victoria Town Hall (Petrolia, Ontario), CP Station (Winnipeg, Manitoba), Morrin College (Quebec City), Church of Our Lady of Good Hope (Fort Good Hope, Northwest Territories), and McLean Mill (Port Alberni, British Columbia).

PLANS FOR YEAR THREE

Historic research and studies will be carried out to develop management plans for the Ryan Premises and Red Bay National Historic Sites in Newfoundland, the establishment of which were announced in 1991. The site management plan for the Gulf of Georgia Cannery will be completed and interim conservation work undertaken. For the Bar U Ranch, historic research and studies will continue in support of the development of a site management plan. In Quebec, negotiations are under way to lease the Manoir Papineau, which will commemorate 19th century seigneurial settlement, and the transfer of the Grosse Île site will be completed. Site management planning programs will be initiated for each of these three historic sites.

Agreements for conservation and protection are being negotiated for the Korol Homestead, the first of three sites in Manitoba and Alberta to commemorate prairie settlement patterns, and for the McLean Mill to commemorate the British Columbia forest product industry.

The Government will support new conservation, management, scientific and training measures over the next five years (page 90).

Data on threatened resources and collections were updated and priority conservation measures initiated, such as for the ethnological materials of the Hudson Bay Company collection at Lower Fort Garry.

Further mitigation measures will be undertaken.

Wildlife Strategy: The National Wildlife Strategy, introduced in 1991, focusses on protecting wildlife diversity, conserving wildlife habitat, and safeguarding healthy ecosystems.

TARGETS AND SCHEDULES

To develop the knowledge necessary to make better wildlife management decisions, the federal government will strengthen its wildlife research programs, focusing on ecological and toxicological research (page 85).

This effort will include establishing, by 1992:

- a Co-operative Wildlife Ecology Research Network at Canadian universities.
- a national Co-operative Wildlife Health Network at Canadian veterinary colleges; and new laboratory facilities to measure trace organic contaminants in wildlife populations and to support toxicological research (page 85).

PROGRESS DURING YEAR TWO

In March 1992, the federal government renewed the Wildlife Toxicology Fund to promote university research in this field. This initiative is jointly funded by Environment Canada, the Natural Sciences and Engineering Research Council and World Wildlife Fund Canada.

Negotiations for the establishment of Co-operative Wildlife Ecology Research Centres began with the provinces, universities and the private sector.

The Canadian Co-operative Wildlife Health Centre is in place. The network to share expertise in wildlife health and disease includes Canada's four veterinary colleges (University of Guelph, Ontario; University of Saskatchewan, Saskatoon; Université de Montréal, Saint-Hyacinthe; and University of Prince Edward Island, Charlottetown). These regional centres will improve our capacity to

PLANS FOR YEAR THREE

Research on the impacts of toxic chemicals and acid rain on wildlife will be conducted, wildlife and habitat knowledge for environmental assessment activities expanded, including the means to prevent or mitigate impacts of human-related activities, and use of wildlife as indicators of environmental quality will be enhanced.

Negotiations will continue to establish the Co-operative Wildlife Ecology Research Centres. The first Research Chair will be established at Simon Fraser University, and negotiations will continue to establish a regional network of Research Chairs involving three universities in the Atlantic Region.

An avian mortality reporting network will be established in concert with the Canadian Co-operative Wildlife Health Centre and the National Survey of Contaminants in Waterfowl will be continued with intensive surveys in western and northern Canada. Results of the first circumpolar survey of contaminants in polar bears will be reported.

TARGETS AND SCHEDULES

To exercise its responsibility to ensure biodiversity, Canada must secure the future of its own wildlife species. Accordingly, the Government will:

- complete recovery plans for 11 at-risk migratory bird species and start recovery programs by 1992;
- renew, in cooperation with World Wildlife Fund, Canada's contribution to the Endangered Species Recovery Fund by 1992; and
- increase the participation of universities and ENGOs in research and recovery efforts directed to threatened and endangered species (page 85).

The Government will take steps to enhance the populations of non-endangered species. Actions will include:

- augmenting and increasing coordination of a network of enforcement coordinators for the *Migratory Birds Convention Act* by 1992;

PROGRESS DURING YEAR TWO

monitor, detect and mitigate the effects of diseases, toxic chemicals and biotechnology products on Canadian wildlife. They have begun to issue wildlife health advisories.

Recovery plans for seven threatened and endangered migratory bird species were approved by the federal-provincial committee. The species include the Marbled Murrelet, Vancouver Island Marmot, Harlequin Duck, Baird's Sparrow and the Burrowing Owl.

The Fund was renewed for five years. The funding partnership, involving World Wildlife Fund Canada, Natural Sciences and Engineering Research Council and Environment Canada, is intended to encourage and support universities and the private sector in carrying out projects that will benefit endangered wildlife and their habitat.

A National Enforcement Strategy is being developed with provinces and other federal departments. A Compliance and Enforcement Strategy was put in place. An enforcement database for reporting enforcement activities and problem identification was developed.

PLANS FOR YEAR THREE

Recovery plans for the four remaining species at risk will be finalized and implemented. A federal policy will be put in place to ensure recovery programs for all threatened and endangered species within federal jurisdiction, and to ensure that information relating to threatened species is available for use in environmental assessment.

Participation of universities and environmental groups in research and recovery efforts will continue to be promoted

TARGETS AND SCHEDULES

- by 1992, developing a cooperative management regime with Northern Ontario native communities, as an important step in the establishment of cooperative regimes throughout Canada (page 86).

Negotiations are under way, under the auspices of the United Nations Environment Program and other international organizations, on a convention on the conservation of biological diversity. Canada supports this concept, and will support international efforts to sign such a convention before the end of 1992 (page 86).

Under the proposed Wild Animal and Plant Protection Act, as well as other applicable legislation, federal controls over the import, export and interprovincial transport of wild animals and plants (and their derivatives) will be strengthened, penalties stiffened and enforcement mechanisms improved (page 87).

By 1992, the Government will initiate an integrated forestry and wildlife conservation program with other governments, and the private sector (page 87).

PROGRESS DURING YEAR TWO

Environment Canada is involved in negotiations leading toward a cooperative wildlife management agreement, including negotiations with the Nishnawbe-Aski Nation in Northern Ontario.

On November 25, 1992, Canada's Parks, Wildlife and Environment ministers, at their first ever joint meeting, supported ratification of the Convention on Biological Diversity. It was ratified on December 4, 1992. A Biodiversity Convention Office was established to lead the development of the Canadian Biodiversity Strategy with other agencies and stakeholders.

The *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* was passed in December 1992. This new legislation will protect threatened and endangered species by ensuring the wild animal and plant specimens are traded in accordance with the Convention on International Trade in Endangered Species (CITES) and foreign conservation laws.

Work began on the development and implementation of an integrated forest bird monitoring program. The Land Bird Conservation Strategy was implemented.

PLANS FOR YEAR THREE

Negotiations will continue with the objective of concluding an agreement.

Federal-provincial-territorial ministers also adopted a process that would ensure the completion of a Canadian Biodiversity Strategy within two years. The strategy will be developed cooperatively among all jurisdictions and will set out the way Canada will respond to the challenges of the Convention. An interim report will be provided.

Following consultations with the provinces, regulations will be developed under the Act. Memorandums of understanding with provinces and territories, and training programs for federal and provincial-territorial enforcement activities, will be developed.

TARGETS AND SCHEDULES

By 1992, the Government will establish a National Wildlife Habitat Network (page 87).

PROGRESS DURING YEAR TWO

The National Wildlife Habitat Network is being developed by governments, environmental organizations and private land-owners to coordinate and speed up work on habitat conservation.

PLANS FOR YEAR THREE

National coordination of initiatives on the Priority Sites List will be provided, a framework plan for habitat conservation system planning in Canada will be completed, and gap and risk analysis for priority landscapes (forests and wetlands) will be initiated. A multi-partner national response strategy for control of purple loosestrife will be developed as an initial response to dealing with exotic invasive plants impacting on wildlife habitat in Canada.

CANADA'S UNIQUE STEWARDSHIP: THE ARCTIC

The Arctic Environmental Strategy: Developed in partnership with the territorial governments, native organizations and northern residents, the Strategy's objective is to protect the Arctic's fragile environment, preserve the health of northern people, and implement sustainable development. The four components of the Arctic Environmental Strategy (introduced in 1991) call for action on: 1) Contaminants - identify sources and transport; assess levels and effects on northern ecosystems and human health; provide health advice; establish international controls through cooperation with other countries and the circumpolar community. 2) Waste - clean-up hazardous, unsafe, and unsightly waste abandoned on unoccupied Crown lands. 3) Water - further development of a water monitoring network; determination of water quality and quantity. 4) Environment-Economy Integration - provide for integration of environment and economy through resource management and improved access to information.

TARGETS AND SCHEDULES

The federal government will implement an Arctic Environmental Strategy, a plan to achieve sustainable development in the Canadian Arctic (page 92).

PROGRESS DURING YEAR TWO

Contaminants: Fifty scientific research studies and related activities were directed at improving our understanding of the origins, occurrence and behaviour of contaminants in the Arctic, and the impact of these substances on northern ecosystems, particularly human health.

Air monitoring stations were constructed in 1992 at Alert on Ellesmere Island, Northwest Territories and at Tagish Tower in southern Yukon.

In 1992, Canada worked jointly with Russia under a revised bilateral agreement on Arctic contaminants studies, particularly related to long-range transport.

The establishment of an independent research and training facility at McGill University was announced in December 1992. The Centre for

PLANS FOR YEAR THREE

Canada, as co-chair with Sweden of a Task Force on Persistent Organic Pollutants under the United Nations Economic Commission for Europe, will lead the development of a protocol for international controls on the release of persistent organic contaminants.

A meeting of the eight polar nations will be conducted for the Arctic Environmental Protection Strategy to assess progress and new or emerging issues. Work will commence on Canada's contribution to the Arctic Monitoring and Assessment Program.

A new Canada-Russia work plan to conduct further joint studies on Arctic contaminants will be developed.

Dietary studies will be initiated in several northern communities to evaluate health risks due to exposure to contaminants in compari-

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

Nutrition and the Environment of Indigenous Peoples, which directly involves native peoples in its management, will undertake studies on the nutritional and environmental health of northern aboriginal peoples. Student and faculty exchanges will also be developed with Yukon and Arctic Colleges providing additional training and education opportunities for northerners.

Waste: Clean-up and assessment work was carried out at more than 100 sites across the North. Most of the projects were carried out by northerners, generating income and developing new skills. The Northwest Territories purchased two shredders capable of reducing metal waste volumes 14 times.

Water: A systematic collection of water quality and quantity data has continued, and special studies directed towards transboundary issues and industry-driven projects were undertaken. Specific water quality studies in the Yukon and Northwest Territories were undertaken at 45 stations. Water quantity research in the Yukon consisted of a major flood study at Old Crow; construction of a hydrometric station at Wolf Creek; and 45 snow stations. Evaporation studies at Pocket Lake and stream measurements on the Liard River and its tributaries were the focus in Northwest Territories.

PLANS FOR YEAR THREE

son to the benefits of consuming traditional native foods. Guidelines will be developed and implemented for responsible research and community-based communication and research strategies, based on proposals put forward by native organizations. Work will commence on a Canadian Arctic contaminants database to house research findings, and on the assessment of implications to Canada from the dumping of radioactive wastes in the Russian Arctic Ocean.

Clean-up activities will continue through contracts with communities and northern bands. The waste shredders will become operational in the Northwest Territories, turning waste metals into a saleable resource and helping to reduce the volume of other wastes.

Federal and territorial governments will sign and implement Water Quality Agreements for Yukon and Northwest Territories. The government will commence intensive, short-term basin hydrologic studies in Eastern and High Arctic Watersheds and scientific reports will be published. Emphasis on area-specific water quality and quantity studies will shift to mining developments.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

Environment-Economy: A directory of more than 300 geo-referenced databases has been prepared to support environment-economy integration. As well, funds were provided for 50 environmental action projects and resource management plans. The former consist of community projects such as recycling programs, environmental awareness programs and trail improvements; the latter, that are larger in scope, are intended to help communities manage their own resources.

On May 21, 1992, the Minister of Indian Affairs and Northern Development issued a Progress Report on the work accomplished in the first year of the strategy.

PLANS FOR YEAR THREE

Data collection, special studies, and clean-up of contaminated sites will continue. Pilot projects for the dissemination of digital, geographically referenced information will be undertaken.

GLOBAL ENVIRONMENTAL SECURITY

Federal-Provincial Greenhouse Gas Emission Agreements: In Canada, many industries, municipalities, public interest groups and individuals have joined with the federal, provincial and territorial governments, to implement elements of the National Action Strategy on Global Warming. The Strategy has three basic components: limiting and reducing the emissions of greenhouse gases; anticipating and preparing for potential climatic changes from global warming; and improving scientific understanding and predictive capabilities with respect to climate change.

TARGETS AND SCHEDULES

Specific action programs to limit greenhouse gas emissions will be announced separately by the federal, provincial and territorial governments. However, the federal government will seek to formalize these action programs by concluding bilateral agreements with the provinces and territories. Under these agreements, a comprehensive inventory and reporting system for the greenhouse gases (including CO₂ and methane) will be established. All agreements will be reviewed periodically as progress towards stabilization is assessed over time (page 102).

PROGRESS DURING YEAR TWO

Negotiations are under way with Nova Scotia and are expected to start shortly with Saskatchewan. National emissions inventories of greenhouse gases for 1990 have been updated with the best available information, and a report was released in December 1992. National emissions forecasts for the year 2000 have been revised. A framework is being developed for assessing the extent to which emissions limitation actions by federal, provincial and territorial governments will contribute to the national goal of stabilizing emissions.

A Greenhouse Gas Emission Reporting and Assessment Office was established to provide information on Canadian greenhouse gas emissions and limitation actions.

PLANS FOR YEAR THREE

Negotiations will be undertaken with other interested provinces and territories. Elaboration of the National Action Strategy will continue by all levels of government.

Emissions limitation options will be assessed in partnership with government and non-governmental organizations.

Global Warming: Efficiency and Alternative Energy: The Efficiency and Alternative Energy Program comprises a series of initiatives which make economic sense in their own right, are directed toward all end-use sectors (equipment, buildings, industry and transportation), and employ a variety of policy instruments (information, suasion, research and development, and regulation).

TARGETS AND SCHEDULES

The federal Minister of Energy, Mines and Resources will table a National Energy Efficiency and Alternative Energy Act dealing specifically with regulation of minimum energy-efficiency levels in energy-using equipment (page 103).

By 1992 Energuide labelling for home appliances will be enhanced to provide consumers with information on opportunities for financial and energy savings. The program will be expanded over later years to other appliances and products in consultation with provincial authorities, industry and other stakeholders (page 103).

The 1983 federal Measures for Energy Conservation in New Buildings will be updated and regionalized, and their incorporation into more federal, provincial and municipal building codes will be encouraged. This program will include promoting the R-2000 energy-efficient standard in home construction and improving awareness of opportunities for energy efficiency in new and renovated buildings (page 103).

PROGRESS DURING YEAR TWO

The *Energy Efficiency Act* came into force on January 1, 1993. Compliance policies have been developed, stakeholder review conducted and standards development work started.

A new Energuide label has been developed and supporting information and training programs established. The new label more effectively communicates information on energy and financial savings.

The new Energy Code for Canadian buildings, as well as marketing and implementation strategies are being developed. Licensing agreements have been negotiated with provincial home builders' associations allowing them to use the R-2000 logo and supporting materials. The R-2000 program aims at improving the thermal performance of new housing in Canada. Contribution agreements have been signed with five partners to market and promote the program.

PLANS FOR YEAR THREE

The first regulations will be published in mid-1993. Preliminary analysis for prescribing additional equipment in subsequent regulations will be conducted. Compliance and monitoring regimes will be deployed and performance monitored.

Energuide training will be implemented nationally and alternatives such as directories developed. Ongoing publications and exhibit programs will be maintained.

The Energy Code will be released for public comment in summer 1993. Training for regulators, inspectors, designers, and builders will begin and appropriate materials developed. Information resources for Code adoption will be developed. Prototypes for a building labelling program will be established.

TARGETS AND SCHEDULES

The Minister of Energy, Mines and Resources will establish a National Advisory Council to promote industry-government cooperation and to establish energy efficiency targets for each of Canada's industrial sectors (page 104).

Programs will be developed to train and certify energy efficiency managers in industrial firms as well as to identify and develop promising technologies specific to each industry sector (page 105).

PROGRESS DURING YEAR TWO

Under the Advanced House Program, 10 houses are being constructed across Canada to develop and commercialize new technologies for prototype energy efficient homes and to test energy efficient equipment.

The Minister's Advisory Council on Industrial Energy Efficiency is being established in conjunction with industrial sector task forces as the principal mechanism to effect energy efficiency in Canada's goods-producing sector.

Technology assessment studies of the pulp and paper, cement and concrete and ferrous metals industries have been launched as part of the Industrial Targeted Research and Development Program. An assessment of the aluminium recycling industry is almost complete.

Technical advice and financial support was provided to the Oujé-Bougoumou Cree Nation for design of a new township, based on a waste-wood-fired district heating system, the first in North America to employ flexible plastic piping. This is now in operation.

Preliminary feasibility studies for Canadian advanced cooling of integrated energy systems were conducted in one U.S. and nine Canadian cities. Field trials of new additives for reducing flow-friction in district cooling systems were

PLANS FOR YEAR THREE

Houses will be open to the public and the building industry to promote technology transfer. Technical monitoring programs will be initiated.

The Council plans to meet in June 1993. It will consider energy efficiency targets, and provide impetus to the industrial initiative. The industry task forces from each goods-producing sector of the economy will develop and implement work programs that will include training and awareness, situation audits and needs analysis, information clearing-house activities and technology considerations. The industrial initiative will be carried out by industry through partnerships with all stakeholders.

Technology development activities will include production of design manuals for consulting engineers for integrated energy systems; involvement of electric utilities in district energy systems; installation at EMR (CANMET, Bells Corners, Ontario) of North America's first ice-slurry district cooling demonstration project; and further discussions regarding similar assistance to other Indian and Innu bands.

A program will be introduced in cooperation with the metals and minerals producing and recycling industries to enhance recycling technologies, beginning with more efficient recycling of metals.

The Canadian Energy Management and Environmental Training initiative will be coordinated with the overall industry energy efficiency initiative.

TARGETS AND SCHEDULES

Accelerated development and market penetration of alternative transportation fuels, including expansion of natural gas markets, increased availability of alternative fuel vehicles, and encouragement of ethanol and methanol as automotive fuels and fuel feedstocks, and support for research and development of alternative fuel sources such as hydrogen (page 105).

PROGRESS DURING YEAR TWO

undertaken. A Working Party on District Energy Technology was established through the Federation of Canadian Municipalities. An evaluation was done of a deep-lake-water cooling system for Toronto to displace 300 MW of electricity and all CFCs now used for downtown air conditioning.

As part of the alternative fuels program, an agreement has been reached with Newfoundland to introduce automotive propane to that province, and agreements to demonstrate methanol flexible fuel vehicles have been reached with British Columbia, Alberta and Ontario. R&D programs for alternative fuels and renewable energy have been announced, and projects are under way, such as demonstration of ethanol- and natural gas-powered buses.

The Budget of February 25, 1992 removed the excise tax of 8.5 cents per litre on the ethanol-methanol portions of blended fuels produced from renewable feedstock such as grains and agricultural waste. The measure encourages the development and use of ethanol and methanol fuels, which produce less carbon monoxide and carbon dioxide emissions than do unblended fuels.

PLANS FOR YEAR THREE

Over the next few years, the Newfoundland propane project will be expanded to include up to 2,200 vehicles. As many as 500 methanol vehicles will be demonstrated in one or more of the current test sites. A propane "concept" vehicle will be released by Chrysler Canada, possibly leading to factory production of propane vehicles by the company. EMR, the Ontario government and the propane industry have supported Chrysler Canada in this project. Phase II of the hydrogen fuel cell bus and prototype electric and hybrid vehicles, involving new technologies, will commence.

TARGETS AND SCHEDULES

Agreements will be reached with major energy-using organizations in Canada on performance and/or prescriptive energy-saving initiatives they will undertake (page 106).

PROGRESS DURING YEAR TWO

The Energy Innovators Initiative will recruit participants from Canada's corporate, institutional and municipal sectors to commit to long-term energy management in their facilities as a means of preventing pollution through energy efficiency. Twenty-seven corporations with national operations, one university and one town have committed to participate in the Energy Innovators Ventures Program.

PLANS FOR YEAR THREE

The number of Energy Innovators will be increased in all targeted sectors. Measures will be taken to accelerate the rate of energy efficiency adoption in all sectors.

Tree Plan Canada: Tree Plan Canada, a national community tree-planting program, was launched across Canada in 1992 to make Canadians aware of the importance of trees in climate change, soil erosion and the loss of biodiversity. It also promotes partnerships among all levels of government, business, community service clubs, youth groups and conservation groups to make a direct contribution towards improving the quality of the environment by planting trees. Information and application forms are available by calling 1-800-563-0202.

TARGETS AND SCHEDULES

In 1991, the Government of Canada will work cooperatively with individuals and organizations to launch a community tree-planting program. The goal of this program is to encourage the planting of up to 325 million trees in rural areas as well as in and around 6,000 cities, towns and communities across Canada (page 107).

PROGRESS DURING YEAR TWO

Since the program was launched, tree planting projects have been completed in every province and in the Northwest Territories. As of October 15, 1992, 114 projects involving community groups, environmental groups, municipalities and individuals had been completed, resulting in the planting of five million trees.

The National Community Tree Foundation, a non-government organization, has become the central vehicle for providing a highly visible focus for Tree Plan Canada, and to promote and secure additional private-sector financial participation.

PLANS FOR YEAR THREE

Tree planting projects presently being approved for 1993 are expected to double project achievements nationwide from the previous year. By summer 1993, approximately 11 million trees will have been planted throughout urban and rural communities nationwide since the program's launch.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

PLANS FOR YEAR THREE

To date, some 230 partners ranging from municipalities to community groups and volunteers young and old have projects approved under the program. Thirteen corporate sponsors have also been enlisted and discussions are under way with 160 other possible sponsors.

Educational material and messages on the benefits of trees, including their contribution to global warming solutions, are being presented to the public through national and regional mediums.

Canada's first national urban forestry conference is being organized for 1994.

Global Warming: Reducing Uncertainties: The Global Warming Science Program will reduce the uncertainties surrounding global warming in Canada. The program focuses on the regional patterns, speed and extent of global warming in Canada, and its effects on the climate.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

PLANS FOR YEAR THREE

The Government of Canada will launch a major public information campaign, beginning in 1991 (page 107).

The Government will pursue cooperative actions with the provinces and farmers to limit greenhouse gas emissions from the agricultural sector (page 107).

Under the Environmental Citizenship Initiative, an information and education campaign on atmospheric change is helping to explain issues to Canadians and the role they can play in reducing greenhouse gas emissions.

Renewable fuels such as ethanol from grain, cellulose and post-consumer wastes are being promoted. Initiatives have been introduced to reduce production costs, increase yields and eliminate barriers to production and use of ethanol in gasoline blends. They include a plan to use alternate feedstocks and preferential purchase of ethanol gasoline blends in federal vehicle fleets.

Business, science and community organizations will assist in developing and disseminating information on atmospheric issues.

Economic, environmental and energetic assessment of supplying renewable carbon will be further developed. Market responsiveness to ethanol will be assessed.

TARGETS AND SCHEDULES

The Government of Canada will significantly increase its commitments to scientific research on climate change. Specific elements of the program will include:

- annual reports on the state of the Canadian climate, beginning in 1991 (page 110).

PROGRESS DURING YEAR TWO

Parkland research centred in western Canada geared to soil and water resource conservation also involves monitoring and evaluating the effects of agricultural contributions to the carbon cycle.

Research is under way into methods for reducing methane and nitrous oxide emissions from agriculture, on how they contribute to methane emissions from cattle and manure storage facilities, and on nitrogen inhibitors and fertilizer technology.

On January 27, 1992, the federal government introduced the Green Plan Science Program aimed at reducing the uncertainties surrounding global warming.

The first in a series of annual reports on the state of Canada's climate was released on December 11, 1991. It is a resource document on current atmospheric issues, with a focus on global warming and ozone depletion. On August 20, 1992 the second report was released. This study examined the patterns of temperature variation in Canada over the past 100 years and concluded that observed warming is real and significant, that it is part of a larger world-wide pattern, and that the changes taking place in our climate show large variations in time and space.

PLANS FOR YEAR THREE

The knowledge base and access to information on soil conservation practices and cropping systems on the Prairies will be expanded. Work will continue to identify, develop and encourage sound soil conservation practices that could decrease tillage operations and to identify alternatives to summer fallow in the Grey and Black Soil Zones of the Prairies.

Study results will be published. The next phase will include the identification and development of proposals for activities and processes capable of reducing the accumulation of greenhouse gases, particularly with respect to quantifying their potential application.

The research effort will include more sophisticated climate modeling and monitoring, development of a network of private sector and university labs, and active participation in international research programs. A major element in this program, the development of the next generation global circulation climate model, will begin.

The third report on the state of the Canadian climate dealing with precipitation will be released.

TARGETS AND SCHEDULES

- a climate change detection network consisting of stations operated by volunteers across all of Canada's climate zones, to be completely in place by 1996 (page 110).

PROGRESS DURING YEAR TWO

Existing data sets have been examined to identify network criteria and requirements, and integrated plans have been developed.

BOREAS (a study of forests and the atmosphere) sites have been selected. International study teams have been chosen and preparations are underway.

The Global Energy and Water Experiments secretariat and research coordinator have been selected and an initial suite of projects planned.

Work began on developing an ocean-climate general circulation model in cooperation with the University of Victoria. Work was also begun on a regional climate model with the Université du Québec à Montréal.

The third of three Integrated Research and Monitoring Areas (IRMAs) was established in the environmentally sensitive Palliser area of the southwestern Prairies. Research at the Palliser IRMA is focused on determining the frequency of droughts as recorded in lake and pond sediments.

Carbon dioxide monitoring equipment and aerosol monitoring equipment were installed at Sable Island. A report was released on the first five years of the greenhouse gas monitoring program being carried out at Alert.

PLANS FOR YEAR THREE

Initial implementation of the detection network will be facilitated by identifying key stations, and the development of starting methodologies for detecting climate change.

Planning for the Northern Biosphere Observation and Modeling Experiment (NBIOME) Program has been completed and a major proposal for university participation will be submitted. The locations of the first stations will be announced, and the first intensive field study (BOREAS) will begin.

The suite of projects will be approved for the Mackenzie River Basin. Selected water and energy research will be expanded in the study area.

Work will continue on a next generation ocean-atmosphere model; a dynamic ocean model; a middle atmosphere model; a regional model; and a network of research centres.

Monitoring of environmental conditions and their evolution through time will continue at three IRMAs (in the Mackenzie Valley and the Fosheim Peninsula on Ellesmere Island, and the Palliser region).

The second report on the greenhouse gas monitoring program will be released.

- a national program, by 1992, for ocean research related to climate (page 111).

As part of the Joint Global Oceans Flux Study, assessing the role of oceans in the carbon cycle, Canada worked with German, Italian and Spanish scientists to investigate surface ocean properties.

Investigations will begin in the North Atlantic on three dimensional regional circulation.

Climate Change Convention: The United Nations Framework Convention on Climate Change, that Canada and over 150 other countries signed in Rio de Janeiro in June 1992, established the blueprint for the international response to global warming.

TARGETS AND SCHEDULES

Canada will aggressively pursue an International Framework Convention on Climate Change and development of any necessary protocols. The Government will also press for the conclusion of negotiations on the Framework Convention and appropriate binding protocols by 1992. In pursuing the Convention, Canada will be seeking a comprehensive international agreement on targets and schedules for the reduction of CO₂ and other greenhouse gas emissions (page 111).

PROGRESS DURING YEAR TWO

The Prime Minister of Canada signed the United Nations Framework Convention on Climate Change (FCCC), and announced Canada's Quick Start Agenda for the FCCC.

The Convention was ratified on December 4, 1992.

The workplan for the Intergovernmental Panel on Climate Change (IPCC) was established in November 1992 and Canada was named Co-Chair of the new Working Group addressing the scientific aspects and technical assessments of the economics of climate change issues.

In October 1992, a joint meeting of officials of the Global Environment Facility (GEF) and the Convention's Intergovernmental Negotiating Committee (INC) was held to discuss respective roles and to mobilize funding for country studies.

Cooperation continued with the World Meteorological Organization to assist developing countries. Canada is also working with Mexico, China (Beijing Province), Tanzania and Zimbabwe to do climate change country studies.

PLANS FOR YEAR THREE

Canada will continue to promote early ratification by other countries so that the UN Convention can enter into force as soon as possible.

The government will issue its national report on plans and policies to meet the Convention's objectives.

Canada has offered to host an international meeting on the comprehensive approach to limiting greenhouse gas emissions.

TARGETS AND SCHEDULES

Canada will also seek to ensure that the International Convention on Climate Change includes provision for enhanced cooperation on international climate change science (page 111).

PROGRESS DURING YEAR TWO

The Convention provides for international cooperation on research and systematic observation. The Convention also creates an advisory body to provide timely information and advice on scientific and technological matters relating to the FCCC.

PLANS FOR YEAR THREE

Canada will continue to be actively involved in the Intergovernmental Panel on Climate Change. Canada also attaches great importance to international cooperation on scientific research coordinated through the World Climate Program.

Ozone Depletion: In 1991, the federal government strengthened its ozone-layer depletion program. The objective is to accelerate the phase-out of ozone-depleting substances, support recovery and recycling and expand scientific programs that monitor the state of the ozone layer.

TARGETS AND SCHEDULES

Canada will accelerate its commitments under the Montreal Protocol, as amended in London, by phasing out CFCs completely by 1997. By 1992, the Government will publish regulations to eliminate specific uses before the 1997 phase-out date, thus demonstrating Canada's leadership role through tough domestic actions. The use of CFCs in car air conditioners will be phased out by the 1995 model-year. The Government will also work with provincial and local governments to ensure the harmonization of control programs by 1992 (page 114).

PROGRESS DURING YEAR TWO

In March 1992, the Canadian Council of Ministers of the Environment (CCME) announced that the phase-out of the production and import of ozone-depleting CFCs will be accelerated and will be completed no later than December 31, 1995.

PLANS FOR YEAR THREE

Amendments to existing regulations will be considered to reflect the new international obligations.

At their meeting in November 1992 in Copenhagen, Canada and other signatory countries agreed to further strengthen the Montreal Protocol on Substances that Deplete the Ozone Layer. Measures include a series of new controls consistent with Canada's national action plan and inclusion of new controlled substances. The Parties agreed to make the

TARGETS AND SCHEDULES

The Government will accelerate the domestic regulatory control program, support recovery and recycling of ozone-depleting substances, strengthen its ability to verify the effectiveness of controls, and provide more assistance for international efforts to protect the ozone layer (page 114).

The Government will strengthen its support of domestic and international scientific efforts on stratospheric ozone. Programs will focus on increased monitoring, improved data analysis and ozone chemistry research. As part of this effort, the Government will:

PROGRESS DURING YEAR TWO

Montreal Protocol Fund permanent to help developing countries to introduce alternative technologies and substitutes.

CCME also announced that all provincial jurisdictions would begin implementing CFC recycling and recovery initiatives by the end of 1992. Existing regulations are being revised, as necessary, to reflect the changes to the Canadian program and the amendments to the Montreal Protocol. A comprehensive communications plan is being prepared to make small users of methyl chloroform aware of the implications of the Canadian program on their activities.

The Canadian fire protection community developed a program for the effective management of existing halon stocks in Canada. The initiative will greatly reduce the need for new halons, will result in fewer releases of these chemicals to the atmosphere and will ensure an adequate supply for fire extinguishers until suitable alternatives to halons are found.

On November 24, 1992, the federal government agreed to the request of the World Meteorological Organization, that Canada become the home of a new world data centre for ultraviolet radiation. The data centre will be used to store information on UV radiation levels recorded worldwide. This information will assist scientists in better understanding the relationship between UV radiation and the ozone layer. The data center is housed at, and operated by, the Atmospheric Environment Service in Downsview, Ontario.

PLANS FOR YEAR THREE

Adjustments to the Canadian program and regulations will be considered in keeping with international and scientific advances.

Canada will participate in and support joint research programs with the United States, Russia, Japan and Europe to ensure that effective global solutions to the ozone depletion problem are developed.

TARGETS AND SCHEDULES

- in 1992, establish an Arctic observatory for research and monitoring of the Arctic stratosphere as Canada's contribution to a series of such observatories in the Arctic nations;
- augment the Canadian Ozone Monitoring Program to determine the effects of ozone depletion on people in all parts of the country;

PROGRESS DURING YEAR TWO

A High Arctic Ozone Observatory was established at Eureka, Northwest Territories to provide a focal point for domestic and international research and monitoring of the ozone layer over the Arctic. Construction of the facility was completed in December 1992.

On March 11, 1992, a new program to report on the state of the ozone layer over Canada was launched. The "Ozone Watch," issued on a weekly basis every Friday, began on March 13. It provides Canadians with up-to-date information on the status of the ozone layer, and on the implication for the level of the sun's "burning" or ultraviolet rays.

During his late October 1992 space voyage aboard the space shuttle *Columbia*, Canadian astronaut Steve MacLean took measurements of ozone levels in the outer regions of the atmosphere 10 to 100 kilometres above the surface of the Earth.

A Canadian scientist is the principal investigator of a component of a NASA-sponsored stratospheric ozone monitoring program using aircraft. Test flights were conducted in 1992.

Two new stratospheric ozone monitoring stations at Winnipeg and Halifax were inaugurated and two others, in Montreal and at Eureka on Ellesmere Island in the Northwest Territories, started operating in a test mode during 1992. This brings the Canadian ozone monitoring network to

PLANS FOR YEAR THREE

The High Arctic Ozone Observatory will become fully operational. Canadian and international teams of scientists will conduct a variety of monitoring and research activities.

The "Ozone Watch" will continue to report on the state of the ozone layer over Canada.

Data analysis and publication of results will take place. Discussions will continue with the Canadian Space Agency and NASA which will lead to other flights of spacecraft with ozone instrumentation. This will provide an independent data set for comparison with the satellite systems that monitor the global state of the ozone layer.

Full experiment flights will be conducted to study the photochemistry of the ozone layer.

All stations will be operational and reports on ozone and UV-B data will be provided to the Canadian public and the international scientific community.

TARGETS AND SCHEDULES

- by 1993, provide warnings of ultraviolet radiation levels for major cities across Canada so that the public can guard itself against excessive exposure to direct sun (page 116).

PROGRESS DURING YEAR TWO

a total of 12 stations across the country and as far north as Resolute and Alert.

The Secretary of State began to prepare a bilingual dictionary of terms associated with stratospheric ozone depletion. This supports and complements efforts by the United Nations in other languages — Spanish, Russian, Chinese and Arabic.

The first Environmental Indicator Bulletin was released on November 5, 1992. It focusses on stratospheric ozone depletion, presents Canadians with a factual and concise way of tracking the status of the ozone layer over Canada, and the progress being made in reducing ozone-depleting substances.

The UV (Ultraviolet) Advisory program was launched on May 27, 1992. This program, originally scheduled to be introduced in 1993, was advanced by a full year in response to concerns and forecasts that the spring of 1992 would bring greater than previously experienced thinning of the ozone layer over the Arctic.

PLANS FOR YEAR THREE

The text will be completed in spring 1993.

The bulletin on stratospheric ozone depletion, the first of a series of environmental indicator bulletins to be released, will be updated annually.

Scientific improvements will be made to ensure that the effect of forecast cloud cover are incorporated into the UV-B advisory. Advice will be provided to other countries (such as the United States) planning to establish similar programs.

Acid Rain: The Government of Canada has renewed its commitment and adopted additional measures in the framework of the Green Plan. In September 1991, Environment Canada announced an extension to acid rain research, monitoring and control efforts. The three main components of this effort are expanding acid rain controls, meeting international commitments, and verifying progress.

TARGETS AND SCHEDULES

Agreements will be re-negotiated in 1991 with the eastern provinces to cap sulphur dioxide emissions permanently at their reduced 1994 levels until the year 2000 (page 120).

Beginning in 1991, the federal government will provide regular progress reports on the extended and expanded Canadian Acid Rain Control Program (page 121).

The federal government will continue its acid rain research and monitoring efforts to verify the adequacy of both Canadian and American

PROGRESS DURING YEAR TWO

Negotiations continued towards redefining agreements with the eastern provinces aimed at reducing sulphur dioxide emissions by 1.5 million tonnes from 1980 levels of 3.8 million tonnes in eastern Canada, and maintaining that level until the year 2000. New Brunswick signed a renewed agreement. Discussions also continued with the western provinces towards reaching federal-provincial acid rain control agreements. For Canada as a whole, the objective is to reduce sulphur dioxide emissions by 1.4 million tonnes from 1980 actual levels of 4.6 million tonnes by the year 2000.

The first progress report on the Acid Rain Control Program was released on June 17, 1992. By the end of 1990, over 85% of the year 2000 goal for eastern Canada had been achieved; 70% of the national goal was achieved.

The monitoring of the health of Canada's forests continued in 1992 and the data indicated that there is no large-scale decline in the health of

PLANS FOR YEAR THREE

A new system for allocating sulphur dioxide emissions targets under the national cap will be reviewed, and design options for an emissions trading system will be reviewed with the provinces and territories.

A report on the effectiveness of the extended and expanded Canadian Acid Rain Control Program will be released. Work will continue to update numerical models for eastern Canada and to use these models to evaluate the adequacy of the national emissions caps. The impact of recent amendments to the US Clean Air Act designed to reduce acid deposition in Canada will be analyzed. Work will be done with the United States to evaluate second generation air quality models which will be used to refine estimates of the transboundary transport of acidifying emissions.

A report on the early results of the acid rain monitoring sites will be released. These sites follow the biological and chemical trends in

TARGETS AND SCHEDULES

acid rain central programs. These will include by 1994, reporting on the causes of forest decline and whether further emission reductions are needed (page 122).

By 1992, Canada will press for re-negotiation of the Helsinki Protocol under the United Nations Economic Commission for Europe (page 122).

PROGRESS DURING YEAR TWO

Canadian forests that can be attributed directly to atmospheric pollution. Tree mortality was generally in the normal range of 1 to 2%, and was caused largely by competition within stands. Higher rates for some species was caused by stress from drought, frost, storms, spruce budworm and bark beetles. Results from the research program shows a strong link between ambient levels of pollution and damage to the cuticular zone of leaves. This has the effect of artificially ageing the leaves and may contribute to tree decline.

Two negotiating sessions were held in 1992 on the preparation of a Second Protocol. The concept of critical loads, which Canada has been promoting within the ECE for more than a decade, has been established as the basis for the Protocol.

PLANS FOR YEAR THREE

aquatic ecosystems that are affected by acid rain. The results of this monitoring will aid the federal government in determining the effectiveness of the acid rain control programs in both Canada and the United States.

Three negotiating sessions are planned in 1993 with the objective of having a Protocol ready for signature by November 1993.

Building International Partnerships: This program provides the mechanism for the integration of Green Plan goals into Canada's foreign policy. The main thrusts of environmental foreign policy are multilateral, bilateral and commercial partnerships. Funding is provided to international organization (such as the United Nations Environment Program), to meet Canada's commitments under international agreements (such as the Montreal Protocol), and to promote Canadian industrial interest (such as through the GLOBE series of conferences and trade fairs).

TARGETS AND SCHEDULES

Canada will establish a national secretariat to assist the participation of Canadians in the United Nations Conference on Environment and Development. Consultations will take place with governments, industry, non-government organizations, women's groups and other stakeholders (page 125).

PROGRESS DURING YEAR TWO

The United Nations Conference on Environment and Development was held from June 3 to 14, 1992 in Rio de Janeiro, Brazil. Canada established its UNCED National Secretariat over a year before the conference, and completed extensive consultations in preparation for the event.

PLANS FOR YEAR THREE

All sectors of Canadian society are engaged in a process to respond to the commitments of Rio and to the challenge of sustainable development. A framework for preparing a co-operative action plan will be the subject of a national stakeholders meeting in May 1993.

TARGETS AND SCHEDULES

We must also strengthen our multilateral and bilateral environmental partnerships (page 126).

PROGRESS DURING YEAR TWO

A more detailed description of Canada's objectives for and achievements at the Earth Summit and next steps is presented in Section 2, and in the document *Canada's Green Plan and the Earth Summit*.

In the last two years, bilateral relations have been strengthened with the former USSR, Mexico, China and Hong Kong.

Canada's environmental interests were promoted on the international scene, which enables Canada to shape emerging multilateral agreements and obligations, and develop bilateral partnerships to accord with Canadian priorities with regard to both sustainable development and competitiveness. The pursuit of these objectives has provided market opportunities for Canada's environmental industry sector.

Projects being funded include the Brazil Rainforest Pilot Program, an international conference on biodiversity country studies, climate change country studies, international oceans and marine research initiatives, and bilateral programs in Mexico, Russia and Czechoslovakia.

PLANS FOR YEAR THREE

A bilateral agreement is expected to be signed with the People's Republic of China, the existing cooperation agreement with Mexico enhanced, and a possible trilateral agreement on environmental cooperation with the United States and Mexico considered.

Canada's annual contribution to UNEP will double over the life of the Green Plan and funds will be allocated in other countries to establish sustainably managed forests along the lines of the model forests concept now being developed in Canada. Funds will also be provided for environmental projects in Mexico.

TARGETS AND SCHEDULES

The Government of Canada will continue to sponsor the "Globe" series of integrated environmental conferences and trade fairs, which will take place in Vancouver every two years. The emphasis of the 1992 conferences will be on practical solutions to environmental challenges and the business opportunities they represent (page 128).

PROGRESS DURING YEAR TWO

On May 27, 1992, the Speaker of the House of Commons released the GLOBE'92 Agenda for Action for Business and the Environment. The 80-page report presents the results of the GLOBE'92 Trade Fair and Conference on Business and the Environment, which attracted 457 exhibitors, 400 speakers and more than 12,500 participants from 74 countries to Vancouver between March 16 and 20.

PLANS FOR YEAR THREE

The business plan and operations for GLOBE'94 will be developed as a single-location event, focused on the promotion and development of the environmental business. GLOBE'94 will be a fully-integrated trade fair-conference-business contacts centre held in Vancouver in March 1994.

ENVIRONMENTALLY RESPONSIBLE DECISION-MAKING

Community Support Initiative: The program has three components: Volunteer Support Fund (formerly the Class Grant Fund), Youth Action Fund, and Community Planning Fund. All three components focus on stimulating voluntary action to achieve a safe and healthy environment. These programs are being managed as part of the overall Environmental Citizenship Initiative.

TARGETS AND SCHEDULES

In support of Canada's commitment to promoting the development of partnerships that address environmental problems, the federal government will provide additional funding to Canada's ENGOs, beginning in 1991 (page 135).

Additional resources will also be deployed to expand cooperation and consultation with business, labour, women's groups, academia, and associations at the national and regional levels (page 135).

PROGRESS DURING YEAR TWO

As of March 1993, 302 environmental groups were receiving voluntary support funds to promote environmental citizenship.

Two major national conferences were held during 1992 with the labour and business community (Labour Connexion and Business Connexion).

The Women's Issue Working Group prepared Canada's position for UNCED on sustainable development matters of particular interest for women, including the Agenda 21 chapter: "Global Action for Women Towards Sustainable and Equitable Development."

In April 1992, a memorandum of agreement was signed to assist the Canadian Manufacturer's Association, over a two year period, to implement pollution prevention programs and improve the competitiveness and performance of its small and medium size business members across Canada. A variety of educational and training aids have been designed.

PLANS FOR YEAR THREE

The program will continue.

A national multi-stakeholder conference under the connexion series is planned for 1993.

Approaches to strengthening relations with women and women's groups and assisting them in their role as environmental citizens are being formulated.

A series of regional colloquia or workshops, or both, is planned for CEOs and managers.

Working with Communities and Individuals: Under this initiative, the federal government supplements existing funding for the Environmental Partners Fund and the Environmental Choice programs. These programs are being managed as part of the overall Environmental Citizenship Initiative.

TARGETS AND SCHEDULES

The federal government will extend the Environmental Partners Fund program for an additional two years and expand the eligibility to include support for non-formal environmental education initiatives, commencing in April 1991 (page 138).

The federal government will strengthen the Environmental Choice program by providing additional funding for increased marketing efforts over the next five years. The program will continue to operate at arm's length from the Government. The expectation is that the Advisory Board will reduce financial dependency, through licensing revenues, over the next three to five years (page 138).

The federal government will expand Environment Week to promote a stronger environmental vision across Canada (page 139).

PROGRESS DURING YEAR TWO

The Environmental Partners Fund was extended and eligibility was expanded. It provided funding for 328 community-based projects designed to protect, enhance or restore the environment. For example, three beach areas have been restored through a cooperative clean-up project between Abitibi-Price and Sagkeeng First Nation that removed submerged logs and bark from the shoreline in Pine Falls, Manitoba. Since the Partners Fund was established, garbage has been collected along 270 kilometres of Atlantic beach front.

Environmental Choice has issued 135 licenses for more than 700 products and services. It has been working on joint promotion at point-of-sale with licensees.

A June 1992 survey indicated that 81% of Canadians were aware of Environment Week. Across Canada, 481 projects were funded, and another 1,000 were undertaken without direct funding.

PLANS FOR YEAR THREE

Deadlines for program applications are September 1, December 1, and March 1.

The number of licencees, products and services will be increased. Efforts will continue to reduce financial dependency, through licensing revenues.

As a result of the awareness created by federal support over the last several years, Environment Week is now at the point where it will continue to grow independent of substantial government support.

Youth UNCED Preparations: Canadian youth organizations were asked by the UN to organize the participation of international youth organizations in the United Nations Conference on Environment and Development.

TARGETS AND SCHEDULES

A Canadian Youth Secretariat on Environment and Development will be established within the Canadian Youth Foundation. The secretariat will organize Canadian and world youth participation in the United Nations Conference on Environment and Development in Brazil in 1992 (page 140).

PROGRESS DURING YEAR TWO

The Government provided financial support to the Canadian Youth Secretariat on Environment and Development (Youth'92) to assist Canadian youth and youth groups prepare for UNCED. Six regional workshops and one National Youth Conference were held to develop a Canadian youth position. This was published in the Canadian Youth Declaration on Environment and Development.

Youth'92 organized the International Youth Preparatory Forum for UNCED, held in April 1992, to prepare the world youth position for UNCED.

In the period following UNCED, their role has been to spread the message of UNCED to Canadian youth and youth groups through participation in conferences, and through the networks established in the UNCED preparation.

PLANS FOR YEAR THREE

At the international level, strong links have been forged among the youth and youth groups participating which are resulting in ongoing activities geared to achieving the objective of sustainable development.

Environment Canada is working closely with youth to determine what role youth can play in the citizenship initiative and in the follow-up to UNCED.

State of Environment Reporting: The Green Plan commits the federal government to provide Canadians with credible and comprehensive environmental information, linked with socio-economic considerations, to help them make informed choices toward sustainable development. This initiative continues the tradition of providing objective, timely and accessible information about the impacts of human activities on the environment.

TARGETS AND SCHEDULES

The Government of Canada is committed to providing accurate, timely and accessible environmental information to Canadians. In 1991, the second national State of the Environment Report will be released (page 141).

By 1993, the Government of Canada will develop and release, on a regular basis, a comprehensive set of indicators that measure Canada's progress in achieving our environmental goals (page 143).

Beginning in 1992, the government will introduce an annual address to Parliament providing a State of the Environment Policy Statement (page 141).

PROGRESS DURING YEAR TWO

The second State of the Environment Report was released on April 9, 1992. The 27-chapter report examines Canada's environmental components (atmosphere, freshwater, oceans and coastlines, land, wildlife), human activities that affect the environment (forestry, agriculture, urbanization), as well as six regional case studies and major environmental issues such as toxic chemicals, climatic change, ozone depletion and acid rain.

Canada's first environmental indicator bulletin was released on November 5, 1992. The bulletin dealt with the issue of stratospheric ozone depletion and presented indicators on domestic supplies of ozone-depleting substances, global atmospheric concentrations of CFCs 11 and 12, and stratospheric ozone levels over Canada.

PLANS FOR YEAR THREE

The national report will be converted to CD-ROM and CD-Interactive formats. Planning the next national report, scheduled for 1996, will be initiated, and fact sheets, reports, newsletters and indicator bulletins will be published. Further development of a voice-fax system will also be conducted, allowing for transmission of information (i.e., publications, indicator bulletins, ecozone profiles) electronically to users.

Development work on the national set of environmental indicators will continue and an additional six indicator bulletins will be released.

Options for the format and timing of the first address will be considered.

TARGETS AND SCHEDULES

Over the next 18 months, the Government will implement pilot accounts for two natural resources and consultations will begin with potential users (page 142).

PROGRESS DURING YEAR TWO

Environmental factors are being incorporated in the System of National Accounts (SNA) by developing the SNA satellite system of integrated environmental and economic accounts. The development of four satellite accounts has begun.

Canada is also working with other member countries of the OECD on the integration of the environment into national accounts.

PLANS FOR YEAR THREE

A draft environmental accounting framework will be released, with regular publication of the new environmental components to be initiated by 1996.

The OECD's Environment Directorate is planning a number of pilot activities on forest and water resources accounts to improve the linkages between natural resource and economic accounts. It is also doing work on environmental expenditure and clean-up accounts.

The Canadian Environmental Citizenship Initiative: The initiative consists of a series of programs challenging Canadians to take action on the environment. The programs include support for local groups, projects and information to help individual Canadians become involved in environmental and heritage activities in the workplace, at home and in their communities. It creates Community Support Planning, Youth Action and Volunteer Support Funds which provide support for community-based projects by local and regional groups, young people and voluntary groups, and the Environmental Learning Program, designed to provide the learning materials necessary for Canadians to make informed and responsible decisions about the environment. The initiative also recognizes individual and organizations who are already making special efforts in the environmental field with a certificate of Environmental Citizenship.

TARGETS AND SCHEDULES

To enable Canadians to move from awareness to understanding and responsible action, the Government of Canada will establish the Canadian Environmental Citizenship Program (page 145).

PROGRESS DURING YEAR TWO

The Environmental Citizenship initiative was launched on June 18, 1992. Since its launch, the Environmental Citizenship Learning Program has produced educational primers and other resource material on four key environmental themes: atmospheric change, waste management, spaces and species and freshwater.

PLANS FOR YEAR THREE

Further efforts will be directed at developing partnerships with business, educators, organizations and communities, seeking their commitment to environmental citizenship and their cooperation in providing appropriate learning opportunities for Canadians.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

PLANS FOR YEAR THREE

Partnerships with business, professional and community groups have been established and environmental citizenship principles and actions plans are being developed.

In February 1993, weather offices across Canada began issuing, with the daily weather forecasts, environmental citizenship messages designed to inform Canadians and get them involved. These messages provide environmental information and identify simple actions Canadians can take to help protect the environment.

Close to 50 Environmental Citizenship Certificates were awarded to Canadians from all walks of life who are contributing to a sustainable environment through their daily actions.

Montreal Biosphere: The Montreal Biosphere project is an interpretation centre that will focus on the St. Lawrence-Great Lakes ecosystem, will allow visitors to gain an appreciation of the importance of maintaining natural ecosystems, and will encourage improved environmental decision-making and environmental citizenship.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

PLANS FOR YEAR THREE

The Government of Canada will develop and deliver programs consistent with the environmental citizenship objectives (page 146).

The physical rehabilitation of the Biosphere was initiated. Preliminary operational and visitor use studies were carried out and a business plan completed.

Work will continue on the preparation of the Biosphere for use as an interpretation centre.

Canadian Global Change Program: Under the auspices of the Royal Society of Canada, the Canadian Global Change Program develops, coordinates and promotes awareness of comprehensive nation-wide research into all aspects of global change, including both the natural and human sciences.

TARGETS AND SCHEDULES

The government will increase its direct financial support for the next five years to ensure that the Global Change Program continues to function as a national information base and as the focal point for coordination with international activities (page 149).

PROGRESS DURING YEAR TWO

Five new research policy panels were created (Arctic, Data and Information Systems, Health, Long-term Ecosystems Research and Monitoring, and Canadian Options for Greenhouse Gas Emissions Reduction — COGGER), assistance was provided for the development of three major global change research proposals (BOREAS, NBIOME and GEWEX), and seven major publications were issued, including a more frequently released newsletter.

PLANS FOR YEAR THREE

A new blue-ribbon panel will be established. The number of joint activities with the Canadian Climate Change Program will be increased. Work on a national global change research strategy will continue. Reports of the research policy panels will be published, as well as a document on global change and Canadians aimed at the general public.

Eco-Research: To help meet future demand for environmental scientists and foster academic excellence in environmental policy, fellowships are awarded for research into important environmental issues. Research grants are provided to bring together teams to conduct interdisciplinary environmental research on Canadian regional ecosystems, integrating skills from the natural, social and health sciences and engineering, and university chairs established to stimulate research and training opportunities in new environmental areas by attracting highly qualified and internationally recognized researchers.

TARGETS AND SCHEDULES

The Government will fund scholarships, professorial chairs and strategic university grants in the environmental sciences. This program will focus on research activities with an ecosystem perspective. By late 1991, the first round of university chairs will be established; by mid-1992, a full slate of scholarships and strategic grants will be put in place (page 150).

PROGRESS DURING YEAR TWO

The first round of scholarships were awarded to 31 graduate students. The letters of intent for the first competition of research grants were also assessed. The first of two competitions for research chairs was held.

PLANS FOR YEAR THREE

Another round of scholarships winners will be announced. The first series of research grants will be awarded, and letters of intent for the second competition of this component will be evaluated. The first university research chairs will be established and the final competition completed.

Revitalization of Laboratories: The program supports upgrading of eight Environment Canada laboratories in Ontario, Saskatchewan and Quebec. The upgrading will allow Environment Canada to better meet the new environmental priorities set out in Canada's Green Plan such as measures to combat urban smog, ensure clean water, and research into toxic chemicals and ozone depletion.

TARGETS AND SCHEDULES

The federal government will revitalize its research facilities and equipment and augment its scientific staff over the next five years (page 150).

PROGRESS DURING YEAR TWO

The program began on February 14, 1992.

New equipment was acquired and installed in most labs, 25 scientists and technical support positions were filled and plans for the upgrading or construction of facilities were initiated.

PLANS FOR YEAR THREE

In addition to the further acquisition and validation of equipment and the staffing of additional scientific and technical positions in the laboratories, year three will see the completion of architectural and engineering studies leading to the upgrading and construction of facilities at the National Water Research Institute in Burlington, Ontario and the Canadian Wildlife Centre in Hull, Quebec.

Technology for Solutions: The Technology Commercialization component promotes the sharing of the financial risk of first-time pilot and demonstration projects involving new environmental technologies. The objective is to accelerate the exploitation of new technologies to help resolve environmental problems. Through the Technology Transfer Program, as many as three environmental technology transfer centres will be established in partnership with the private sector, academia and other governments. They will be not-for-profit centres at arm's length from government.

TARGETS AND SCHEDULES

The federal government will provide cost-shared funding for programs to encourage the development, demonstration, commercialization and dissemination of environmentally favourable technologies (page 150).

PROGRESS DURING YEAR TWO

In December 1992, the first Commercialization Project under the program was announced involving Mobile Computing Corporation of Toronto which is developing new truck-mounted garbage weighing technology for use by municipal waste collection operations. A pilot project using this technology will take place in Oakville, Ontario in fall 1993.

A comprehensive technology transfer implementation study was completed which included a series of workshops across Canada with industry, universities, venture capital firms and other governments.

PLANS FOR YEAR THREE

Further environmental technology commercialisation projects will be assessed and contracts awarded.

Three Canadian environmental technology transfer centres will be established at arm's length from government to accelerate the application of technology for solutions of Canadian and international environmental problems.

A pilot environmental technology clearing-house established in British Columbia will be evaluated to determine the potential for a national environmental technology clearing-house system.

Environmental Innovation Program: The program is designed to enlist Canadians as contributing partners in the research and development required to meet national environmental challenges. Contracts will be awarded for ideas which will result in tangible new environmental products, processes or services.

TARGETS AND SCHEDULES

The Government of Canada will promote Canadian environmental innovation outside government (page 151).

PROGRESS DURING YEAR TWO

More than 100 proposals were submitted and 21 contracts signed. Projects underway include an automated network for the National Waste exchange program which will be tested in Manitoba, improving flood detection and early warning systems along the Saint John River in New Brunswick, and the development of new technology to counter water contamination in Alberta's rivers and lakes.

PLANS FOR YEAR THREE

New proposals will be assessed and contracts awarded.

Enforcement and Training: In 1991 Environment Canada established a National Office of Enforcement to train personnel, ensure compliance with regulations, and monitor enforcement activities and compliance levels.

TARGETS AND SCHEDULES

Over the next five years, the Government will enhance its ability to enforce environmental laws. The enforcement effort will cover a wide range of remedial and preventative measures to control threats to the environment in a manner that supports sustainable development (page 156).

PROGRESS DURING YEAR TWO

The number of full time officers enforcing CEPA and the *Fisheries Act* increased to 70 from 49 in year one. Policies and procedures were drafted to help inspectors and investigators to decide which enforcement actions to take under particular circumstances.

PLANS FOR YEAR THREE

The number of full time CEPA and *Fisheries Act* enforcement officers is expected to increase from 70 to 90. An annual national inspection plan will be completed for each regulation, and inspection priorities and training requirements established for the year. The inspection and investigation reporting system will be modified to provide data on enforcement and to track inspections, investigations and compliance histories of establishments.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

Regional law enforcement officers were hired and new technologies were acquired to reduce poaching in national parks.

In June 1992, the Federal-Provincial Advisory Committee approved its final report recommending solutions to resolve outstanding issues in federal-provincial administrative and equivalency agreements under CEPA. These agreements will form the basis for a cooperative, coordinated approach to the application of both federal and provincial regulations in the provinces.

PLANS FOR YEAR THREE

Regional intelligence specialists and additional enforcement officers will be hired.

Negotiations will continue with all provinces on equivalency and administrative agreements with the objective of putting agreements in place.

Development of Economic Instruments: This program focuses on the analysis and application of market-based approaches to achieving environmental objectives.

TARGETS AND SCHEDULES

Market forces are powerful instruments that can and should be harnessed in the pursuit of sustainable development. In 1991, the Government of Canada will establish a program to support practical research into the use of economic instruments to address Canada's major environmental problems. In the spring of 1991, the Government will also release a discussion paper on the use of economic instruments in environmental protection (pages 157, 158).

PROGRESS DURING YEAR TWO

The discussion paper was released on May 21, 1992.

The February 1992 Budget removed the excise tax of 8.5 cents per litre on the ethanol-methanol portions of blended fuels produced from renewable feedstock such as grains and agricultural waste. The measure encourages the development and use of ethanol and methanol fuels, which produce less carbon monoxide and carbon dioxide emissions than do unblended fuels.

PLANS FOR YEAR THREE

The government will continue to explore options for the potential application of a wide range of economic instruments.

STARTING IN OUR OWN HOUSE

Environmental Assessment: The *Canadian Environmental Assessment Act*, passed in June 1992, will require that federal departments and agencies conduct environmental assessments of all proposed projects for which they have decision-making authority.

TARGETS AND SCHEDULES

The Act ensures a clear and balanced process for stakeholders and authorizes the Minister of the Environment to initiate public reviews of projects with potentially significant environmental effects (page 161).

PROGRESS DURING YEAR TWO

The *Canadian Environmental Assessment Act* received Royal Assent on June 23, 1992 and the key regulations which determine scope and application (Law List, Comprehensive Study List, Exclusion and Inclusion Lists) have been developed.

| Twenty-five panel reviews were under way.

An orientation-training program for the *Canadian Environmental Assessment Act* was developed to provide instruction and direction on the new legislation. A guide to the *Canadian Environmental Assessment Act* and associated reports on significance, cumulative environmental effects and public registry have been developed for federal departments and proponents.

The Federal-Provincial Harmonization Framework Agreement for environmental assessment was signed. Negotiations on a bilateral agreement with Alberta were initiated.

PLANS FOR YEAR THREE

Implement a transition program to shift from the Environmental Assessment and Review Process Guidelines Order to the *Canadian Environmental Assessment Act* and monitor issues and projects undergoing review during this period.

The Government will prepare for the implementation of the *Canadian Environmental Assessment Act*, and begin the development of four to five further regulations, including those for crown corporations, public registry, aboriginal regulations, minimal federal involvement and official development assistance.

Complete the implementation strategy and the compliance policy for the *Canadian Environmental Assessment Act*.

Develop bilateral harmonization agreements with provincial governments to ensure co-operation and streamlining of environmental assessment processes in Canada.

TARGETS AND SCHEDULES

Environmental impact assessments are required for all new proposals coming before Cabinet for decision (page 162).

PROGRESS DURING YEAR TWO

The results of the environmental review of the North American Free Trade Agreement (NAFTA) were released on November 3, 1992. The NAFTA is the first trade agreement to undergo such an environmental review.

Work will continue on the methodology for assessing policies and programs initiatives submitted to Cabinet for consideration.

PLANS FOR YEAR THREE

Generic guidelines for policy assessment will be provided to all federal departments.

Existing Policy and Program Review: Ongoing review of the environmental implications of existing federal activities.

TARGETS AND SCHEDULES

Early in 1991, the Government of Canada will begin a comprehensive review of the environmental implications of existing statutes, policies, programs and regulations, and will propose modifications as necessary. While much of the initial work will take place over the period from 1991 to 1996, the review itself will be an ongoing process (page 162).

PROGRESS DURING YEAR TWO

Environment Canada and the Office of the Comptroller General are cooperating to integrate environmental considerations into program evaluation processes. Departments are building an environmental component into the regulatory review mandated by last year's budget. A federal-provincial-territorial review of agricultural programs is under way. The Canadian International Development Agency has reviewed its project funding over the past five years against sustainable development criteria.

PLANS FOR YEAR THREE

The Government of Canada is currently reviewing options for mechanisms to build on these efforts.

Environmental Stewardship: The Code of Environmental Stewardship requires all federal agencies to incorporate environmental considerations into their operations and practices, from managing facilities and real property to obtaining goods and services, and handling waste. An Office of Environmental Stewardship will promote environmental opportunities within the federal government and identify potential cost-saving environmental measures.

TARGETS AND SCHEDULES

In 1991, the Government will adopt a comprehensive Code of Environmental Stewardship covering all areas of federal operations and activities (page 163).

PROGRESS DURING YEAR TWO

The Code of Environmental Stewardship was introduced on June 5, 1992, and the Office of Environmental Stewardship was established. Significant progress has been made over the year as departments began the preparation of their own action plans most of which will be publicly available in the spring of 1993. An electronic bulletin board accessible by all federal employees was started to encourage the sharing of information and to be a paperless reference source. An interdepartmental network of environmental coordinators was established and is actively promoting stewardship and providing mutual support among departments.

The Office also established a demonstration program to cost-share with departments new approaches which will have both an environmental and fiscal benefit. These projects must be able to be replicated based on the documented results. Over a dozen projects were supported in the year.

An Environmental Accountability partnership between the Office of the Comptroller General and Environment Canada is examining, through interdepartmental working groups, how the integration of the Code of Stewardship can be supported by the management tools of program evaluation, internal audit and environmental audits and self-assessments.

PLANS FOR YEAR THREE

Emphasis will be on more fully involving the staff in federal regional offices in Stewardship activities. Demonstrations projects from regions will be given priority. Networks will be established across the country.

The results of federal activities will be compiled and made available to others undertaking similar actions. The results of the projects supported under the demonstration program will be promoted to share the learning experience.

TARGETS AND SCHEDULES

Beginning in 1992, in cooperation with the Office of the Comptroller General, federal departments and agencies will implement policies and procedures for environmental auditing (page 164).

PROGRESS DURING YEAR TWO

The Federal Buildings Initiative (FBI) helps federal departments improve the energy efficiency of their facilities by providing access to third party financing and utility incentive programs. Model bidding and contractual documents have been prepared, and a list of energy management firms with access to venture capital of \$3 billion has been developed.

Memoranda of understanding in connection with the FBI have been signed with BC Hydro and Centra Gas, and are being negotiated with Ontario Hydro, Manitoba Hydro, Hydro-Québec and Gaz Métropolitain.

An interdepartmental group has been established to work with the Canadian Standards Association to address government issues related to the international standards being developed.

PLANS FOR YEAR THREE

The FBI program will proceed to the implementation phase, commencing with pilot energy upgrades in departments that hold property.

The emerging standards will be disseminated throughout the federal government.

EMERGENCY PREPAREDNESS

Marine Environmental Emergencies Response Strategy: Introduced in 1991, the Marine Spill Strategy's goal is to protect Canada's oceans, coastline and inland waters from oil and chemical spills. It has three major components: prevention of spills; preparedness to respond to environmental emergencies in our waters; and policies, including legislation, to improve safety and ensure that polluters pay.

TARGETS AND SCHEDULES

Over the next five years, preventive measures will be enhanced. They will include improvements to radar and vessel traffic control facilities, electronic charting for tankers, increased inspection of vessels and increased aerial surveillance. By the end of 1991, on-board inspections of foreign-flag vessels will be increased and better-equipped and better-trained response personnel will be in place (pages 168-169).

PROGRESS DURING YEAR TWO

Marine navigational support and vessel traffic services in Placentia Bay and the Bay of Fundy sites are being re-equipped, with a third site (Sarnia, Ontario) in the planning stages. A vessel traffic service needs study was conducted of the Great Lakes. A slow scan radar system was installed in Tofino, allowing the exchange of radar data between the US and Canadian Coast Guards.

Six electronic chart systems were installed for testing on 12 vessels, operating in all areas of Canada, over the next 18 months. This is the largest test bed of its kind in the world, and will include tankers, bulk carriers, ferries and marine training institutes. Creating the essential electronic chart digital data base represents the largest investment.

Aerial surveillance activity was increased on the east and west coasts and the St. Lawrence River with three Coast Guard aircraft flying in excess of 48,000 track miles; more than 75 pollution sightings were reported for investigation or legal action.

PLANS FOR YEAR THREE

Vessel inspections will continue as per the Port State Control Agreement. Additional improvements to vessel traffic services will be incorporated in the vessel traffic services long-term capital investment plan.

The Electronic Chart Pilot Project will continue. The results from user feedback will be used as part of the legislative review, and will help establish international standards for both equipment performance and navigational use.

Aerial surveillance patrols will be increased with additional flights as more response personnel become trained in oil observation at sea. Multi-tasking of National Defence and Fisheries aircraft will allow for more flights. On-board equipment will also be upgraded.

TARGETS AND SCHEDULES

Seagoing tankers that bring chemical and petroleum products to this country or export them from Canadian ports represent a major potential marine pollution threat. The Government's objective is to implement measures that will result in an environmentally safer method of transporting petroleum products by sea. Although no single design feature can completely eliminate accidental oil spills, the Canadian Coast Guard advises that double hulls have the potential to prevent or significantly reduce outflows from low-impact groundings or collisions. For this reason, the federal government will begin consultations with the marine industry on the phase-in of this important measure (page 168).

The federal government believes that Canadians have a right to expect adequate compensation when they are directly affected by marine pollution incidents. It also believes that compensation coverage for the Arctic must be improved. Therefore, the federal government is reassessing compensation levels and considering the potential uses of the existing Ship-Source Oil Pollution Fund, as well as other funding mechanisms (page 168).

PROGRESS DURING YEAR TWO

The Coast Guard increased vessel inspection of all foreign vessels visiting Canada, from 8% in 1990 and 16% in 1991 to 38% in 1992 to ensure compliance with Canadian law. The international minimum standard is 25%.

Intensive reviews and consultations on the 107 recommendations of the Public Review Panel on Tanker Safety and Marine Spills Response Capability were conducted to help prepare a government response. Many of the issues that the panel and the government considered urgent were initiated.

Oil tanker double hull construction standards are being drafted for incorporation under the *Canada Shipping Act*. They will reflect the requirements of the International Convention for the Prevention of Pollution from ships and the timetable established by the Coast Guard-industry working group.

In November 1992, Canada participated in international negotiations to develop improvements to the existing international regimes for liability and compensation. These improvements, when in force, will provide for increased levels of compensation funding.

PLANS FOR YEAR THREE

Canada will require, after July 1993, that new oil tankers have a double hull or equivalent design when operating in Canadian waters, and that existing single-skinned tankers be retrofitted or phased out on a schedule that is consistent with international requirements. Similar requirements will be applied to barges, with the exception of certain existing shallow draft barges operating in the Mackenzie River.

The review of available funding for liability and compensation will be completed.

TARGETS AND SCHEDULES

Over the next five years, measures will be introduced to improve marine spill contingency planning, upgrade clean-up equipment, improve and expand training programs for response personnel, and increase research and development focusing on spill response techniques and technologies (page 168).

PROGRESS DURING YEAR TWO

A special project team has been formed to oversee the development of an integrated set of regional and national contingency plans, the drafting of legislative amendments to the *Canada Shipping Act*, and the development of operational and technical guidelines to improve spill response capability in cooperation with the private sector. In all regions, contingency plans are being reviewed to reflect new policies, procedures, inter-governmental arrangements and improved countermeasures technologies.

Significant spill response equipment acquisitions were made. Spill response equipment is now carried on board all Coast Guard ice-breakers and pollution countermeasures equipment has been stationed at Iqaluit.

Research and development focused on improving operational spill response capabilities through containment of oil spills in cold regions, shoreline clean-up, predicting spill movement and dispersion at sea and in ice-infested waters, oil behaviour and fate, and oil spill treatment methods. Work on remote sensing of oil spills was accelerated. Compatible fish habitat data bases for inclusion in the national sensitivity mapping program were developed.

PLANS FOR YEAR THREE

The proposed amendments to the *Canada Shipping Act* will ensure tougher fines and harsher sentences for pollution offenses. New shipping safety regulations will be implemented and international conventions on oil pollution preparedness, response and cooperation and salvage will be respected.

Field trials will be undertaken with all new equipment and new personnel will be trained.

Work will continue on spills research and development projects, such as spill remote sensing systems, the World Oil Spill Trajectory Model, with major private and public stakeholders in Canada and the United States. In the area of sensitivity mapping, a national coordinated effort will continue to develop data bases for sensitive coastal and inland areas. Other research efforts will be accelerated on chemical spill response, habitat rehabilitation, and waste disposal.

TARGETS AND SCHEDULES

Working in cooperation with industry, the Government will ensure that more, better-equipped and better-trained response personnel are in place by the end of 1991. New training programs will be implemented by mid-1992 and a program will be developed to include trained volunteers in clean-up operations (page 169).

PROGRESS DURING YEAR TWO

Training courses in marine response have been updated and increased and a national exercise program is being developed to assess and develop response preparedness of Canada's marine spill response community. Training packages were developed and delivered for oil spill responders, remote sensing of oil spills, sensitivity mapping, and spill trajectory modeling. Multi-agency marine spill response exercises were carried out in cooperation with the US Coast Guard and other stakeholders.

Discussions are under way with Inuit groups on community involvement in responding to a spill. Volunteers are being trained in spill response operations in all regions across Canada. Workshops have been given regionally on the rehabilitation of birds and wildlife.

PLANS FOR YEAR THREE

Training courses for all individuals in spill response operations will continue to be offered. By the end of 1993, more, better-equipped and better-trained response crews will be in place throughout Canada. The Government will also ensure that response teams have high-quality technical support, including modern and reliable communication systems.

Training workshops on spill response and rehabilitation of birds and wildlife will continue.

Hazardous Spills Prevention and Response Program: The program's goal is to prevent future environmental emergencies and respond with well-trained teams. A network of emergency teams, the weather service and a national emergency technology centre provides technical advice, information and support to the on-site responders, the local community and local government authorities during and after an emergency. To improve Canada's existing capability to deal with oil and chemical spills on land and into rivers and lakes and accidental releases of toxic substances into the air, the program will: increase the number of better equipped and trained response teams; develop spill-prevention strategies through regulatory and other measures, and identify facilities that could potentially cause a major accident; promote emergency preparedness concepts and plans, and regularly test those plans; improve federal emergency communication and information systems; develop a well-equipped hazard monitoring response team ready for deployment anywhere in Canada; and accelerate development of spill-response, monitoring and clean-up equipment and technologies.

TARGETS AND SCHEDULES

To deal more effectively with oil and chemical spills on land or in inland waters and with toxic gas releases into the air, the Government will launch a major program to improve national cooperative spill response and prevention capabilities (page 169).

PROGRESS DURING YEAR TWO

The Major Industrial Accidents Council of Canada (MIACC) is developing measures for spill prevention, emergency preparedness, public education, and contingency planning standards and guidelines. An Emergency Response Training Inventory, containing information and listings on training material for emergency responders was developed.

On March 19, 1992, Canada signed the International Convention of the Transboundary Effects of Industrial Accidents. The Convention, negotiated under the auspices of the UN Economic Commission for Europe, provides a means for countries to cooperate with neighbouring states on transboundary accident prevention, preparedness and response. Countries must engage in early consultations on planned developments that could affect each other's territory. Articles are also included on mutual assistance, research and development and exchange of technology.

PLANS FOR YEAR THREE

A review of implementation of the Bhopal Review recommendations will be conducted. MIACC will develop guiding principles for joint municipal and industry contingency preparedness and co-sponsor conferences on hazardous substances accidents and chemical process safety.

Canada and the United States are working to complete a bilateral agreement on a joint inland pollution emergency plan.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

Consistent with the Convention, Canada resumed negotiations with the US Environmental Protection Agency to draft the Canada-US Joint Inland Pollution Contingency Plan which deals with boundary spills on land as well as smaller boundary rivers and lakes other than the Great Lakes.

Research and development continued on analytical systems for chemical spills including the development of a vehicle-portable chemical spill analytical system.

PLANS FOR YEAR THREE

The Joint Plan will be completed and work will commence on the development of a National Accident Prevention Strategy to reduce the occurrence of accidents in major industrial complexes. The development of spill response policies, preparedness and response manuals, and treatment methods for contaminated soil and water will be completed for use by federal and provincial governments and municipalities. A report identifying the spill response capability of installations, potentially capable of causing major accidents, will be produced.

Work will continue on the development of tests for oil and chemical treating agents. A new artificial intelligence system will be developed to predict the fate and behaviour of most types of spills.

Prediction and Warning: In 1991, the Environmental Emergencies Prediction and Warning initiative was introduced to provide more effective, timely detection and warning of environmental emergencies. The key elements of the program are storm prediction, detection radars, information dissemination and service delivery.

Environment Canada will provide earlier detection, better prediction and more timely warnings of severe weather events and of major airborne pollution emergencies (page 170).

A satellite-based communications system has been installed in seven of eight regional offices as part of a flood forecasting system to receive and process water and meteorological data. Potential flood communities have been identified in consultation with the provinces, and discussions held with Manitoba, Ontario, Alberta and Quebec on early warning systems.

The five-year program, which began in 1992-93, will improve the timely warning of severe weather and atmospheric pollution events, upgrade emergency communication and surveillance systems, and enhance public awareness of the risks of natural disasters and appropriate responses to them. Forecasts of iceberg distribution off Canada's east coast will be produced and disseminated. Emergency communications will be upgraded by making weather warning messages available in computer formats for use by the media and other key disseminators.

TARGETS AND SCHEDULES

PROGRESS DURING YEAR TWO

In April 1992, a new weather office for the Saguenay-Lac St. Jean area in Jonquière, Quebec was opened, as part of ongoing efforts to provide improved and more localized weather and related environmental services.

Construction began for the Southern Interior Weather Services Office in Kelowna, British Columbia. The first of its kind in Canada, the Office will use the most advanced technology to bring improved weather warnings, forecasts and services to the region.

Weathercopy, a new weather information service was launched on August 10, 1992. It provides Canadians with up-to-date printed information on environmental and weather hazards and is the first technology of its kind in weather broadcasting. Twenty-one transmitters were installed across Canada.

PLANS FOR YEAR THREE

The Office will open in spring 1993.

Twenty additional transmitters are planned. Once completed, over 80% of Canadians will be reached by Weathercopy.

SUMMARY OF FINANCIAL REQUIREMENTS

Canada's Green Plan includes programs delivered by 15 federal departments and agencies. Figure 1 presents the allocation of resources across those departments. The figures, and those in the tables that follow, include only those expenditures charged to the Green Plan; some programs receive additional funding from other sources.

In 1991-92, just over \$210 million was spent on Green Plan initiatives. In 1992-93, forecast spending is \$286 million. For 1993-94, \$351 million has been allocated government-wide for Green Plan programs.

By department, the largest allocation is to Environment Canada (excluding funding for environmental assessment which is presented separately), with just under 40 per cent of the Green Plan total. The next largest allocations are to Indian and Northern Affairs; Energy, Mines and Resources; and Health and Welfare Canada.

Figure 1: Approved Green Plan Resources by Department¹

(millions of dollars)	1991-92 Actual	1992-93 Forecast	1993-94 Estimate
Agriculture (Agr)	2.3	12.6	21.2
Canadian International Development Agency (CIDA)	0.8	0.6	0.6
Energy, Mines and Resources (EMR)	12.5	23.1	28.1
Environment Canada (EC)	67.0	99.5	141.3
External Affairs (EAITC)	2.8	5.3	5.0
Finance (Fin)	1.0	0.8	1.4
Fisheries and Oceans (F&O)	11.5	15.5	16.3
Forestry (ForCan)	7.5	18.8	23.0
Health and Welfare (HWC)	7.2	20.2	25.3
Indian and Northern Affairs (INAC)	57.8	53.0	44.7
Industry, Science and Technology (ISTC)	0.3	1.4	8.3
Social Sciences and Humanities Research Council (SSHRC)	0.4	0.5	0.5
Statistics Canada	0.5	0.5	0.6
Supply and Services (SSC)	0.1	0.2	0.2
Transport (TC)	4.3	9.9	11.5
Government-wide (EARP)	34.1	24.7	23.2
Total	210.2	286.4	351.1

1 Forecast as of February 25, 1993

Figure 2 presents Green Plan allocations by program. Funding is allocated across 44 program areas. For the first three years of the Green Plan, the largest allocations have gone to the Arctic Environmental Strategy/Indian Health and Water Program (INAC, EC, HWC, F&O); Environmental Assessment (government-wide); Toxics (EC and F&O); International Partnerships (DOE, EA, CIDA, Fin); Health and Environment (HWC); Action on Energy (EMR); and Marine Spills (TC, EC, F&O).

Figure 2: Approved Green Plan Allocations by Program¹

(millions of dollars)	1991-92 Actual	1992-93 Forecast	1993-94 Estimate
Life's Three Essentials: Clean Air, Water and Land			
Action Plan on Health and Environment (HWC)	6.1	18.0	21.9
Arctic Environmental Strategy/Indian Health and Water (INAC, EC, HWC, F&O)	57.8	54.1	46.2
Fraser River Management Plan (EC, F&O)	5.3	11.3	17.2
Atlantic Coastal Action Plan (EC)	0.5	0.9	1.1
Great Lakes/St. Lawrence Pollution Prevention Plan (EC)	2.3	2.6	2.8
Control of Ocean Dumping (EC)	0.3	0.6	1.2
Toxic Substances (EC, F&O)	7.3	17.7	23.3
Smog (EC)	1.4	2.5	4.2
Waste Reduction and Management (EC)	2.0	2.2	2.7
Low-level Radioactive Waste Siting (EMR)	1.3	4.6	7.4
Subtotal	84.3	114.5	128.0
Sustaining Our Renewable Resources			
Forestry (ForCan)	3.6	9.0	14.9
Agriculture (Agr)	2.0	11.9	20.1
Pesticide Registration (HWC)	0.3	0.5	1.6
Subtotal	5.9	21.4	36.6

¹ Forecast as of February 25, 1993

Figure 2: Approved Green Plan Resources by Program (continued)

(millions of dollars)	1991-92 Actual	1992-93 Forecast	1993-94 Estimate
Protecting Our Special Spaces and Species			
Completing the Parks System/Commemorating Historical Sites (EC)	4.7	6.5	11.4
Wildlife Strategy (EC)	2.6	3.5	5.5
Subtotal	7.3	10.0	16.9
Global Environmental Security			
Federal/Provincial Agreements/Climate Change Convention (EC)	0.9	1.3	1.4
Action on Energy (EMR)	9.4	16.9	19.0
Tree Plan Canada (ForCan)	3.3	8.8	7.3
Global Warming: Reducing Uncertainties (EC, F&O, Agr, EMR)	2.6	5.1	9.0
Ozone Depletion (EC)	2.9	3.0	3.7
Acid Rain (EC, F&O, ForCan, HWC)	4.0	4.7	4.3
Building International Partnerships (EC, EAITC, CIDA, Fin)	19.0	19.4	18.0
Subtotal	42.1	59.2	62.7

Figure 2: Approved Green Plan Resources by Program (continued)

(millions of dollars)	1991-92 Actual	1992-93 Forecast	1993-94 Estimate
Environmentally Responsible Decision-Making			
Community Support Initiative (EC)	1.0	1.7	1.7
Working with Communities/Individuals (EC)	4.7	3.5	0.3
Youth UNCED Preparations (EC)	1.0	0.7	
NRTEE (EC)	1.3	0.3	2.9
State of the Environment Reporting (EC, SC)	2.3	2.8	4.6
Environmental Citizenship Program (EC)	3.7	4.8	5.3
Montreal Biosphere (EC)	0.5	5.0	7.3
Canadian Global Change Program (EC, Royal Society of Canada)	0.2	0.5	0.7
Eco-Research (EC, SSHRC)	0.4	2.9	6.6
Revitalization of Laboratories (EC)	2.4	3.7	7.6
Technology for Solutions (EC, ISTC)	0.5	2.3	10.4
Environmental Innovation Program (EC, SSC)	0.2	1.1	2.9
Enforcement and Training (EC)	2.2	4.7	7.0
Development of Economic Instruments (EC)		0.2	0.4
Subtotal	20.4	34.2	57.7

Figure 2: Approved Green Plan Resources by Program (continued)

(millions of dollars)	1991-92 Actual	1992-93 Forecast	1993-94 Estimate
Starting in Our Own House			
Environmental Assessment (All Departments)	34.1	24.7	23.2
Federal Environmental Stewardship (EC, EMR)	1.6	2.5	2.2
Subtotal	35.7	27.2	25.4
Emergency Preparedness			
Marine Spills (TC, EC, F&O)	8.9	15.0	16.8
Non-Marine Spills (EC)	2.7	2.4	3.1
Prediction and Warning (EC)	1.7	2.7	4.2
Gulf Clean-up (EMR, TC, EC)	1.2		
Subtotal	14.5	20.1	24.1

Canada